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MARROW BIOPSY

PREPARATION AND USE OF PARAFFIN SECTIONS FROM STERNAL-PUNCTURE MATERIAL

BY

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[WITH PHOTOGRAVURE PLATE]

The value of sternal puncture as a diagnostic measure in disorders of the haemopoietic system is now widely accepted by haematologists, and the procedure is generally recognized as being safe and causing little or no discomfort to the patient. The usual method of dealing with the biopsy material consists in the microscopical examination of marrow smears stained by one of the Romanowsky stains, a differential count of the nucleated cells, and an estimation of the leucocytogenic–erythrogenic ratio. Other workers carry out total nucleated-cell counts, and supravital preparations may be made if desired. These procedures, while of great value cytologically, do not always give a true picture of the marrow as a whole and give no indication of its architectural arrangement. A simple method of preparing good histological sections from sternal-biopsy marrow would be of great service and the sections would yield valuable additional information about the architecture of the marrow, especially in cases of hypoplasia or aplasia, which may be difficult to assess from the smears alone. Many pathologists and clinical haematologists to whom we have shown our preparations have expressed surprise that such valuable information can be obtained so simply; since the technique for preparing satisfactory marrow sections from sternal-puncture material does not appear to be widely practised, this paper purposes to give a short account of the method adopted, after many trials, in our laboratories.

Method

After adequate local anaesthesia has been obtained, and with due aseptic precautions, marrow is aspirated from the sternum through a needle of the Salah type into a 10-ml. Record or all-glass syringe, which must have a tightly fitting piston. Strong suction should be applied when the marrow cavity is entered, in order to aspirate actual fragments of the tissue and to avoid undue admixture with blood, which tends to spoil the films; no more than 0.5–1.0 ml. need be aspirated. Two or three dozen or more thin films are made by spreading a minute drop of the marrow on microscope slides without attempting to select marrow fragments, and the remainder of the marrow is ejected into a 500-ml. Erlenmeyer flask containing the modified Zenker-formol which we have found to give the best results. This is prepared immediately before use according to the following formula:

Zenker's fluid (minus acetic acid)	45 ml.
40% formaldehyde solution	5 ml.
Formol saline 10%	50 ml.

Fixation is adequate in 20 to 30 minutes, and the marrow fragments must not be left for more than 30 minutes in the fixative, otherwise too much shrinkage will occur and subsequent staining will be poor. We have experimented with numerous fixatives and varied the length of fixation, but the best results were obtained by the use of this half-strength Zenker-formol solution. When the marrow has been in the fixative for the above time 400 ml. of distilled water is added and thoroughly mixed; the tiny marrow fragments quickly settle to the bottom of the flask. The supernatant fluid is then siphoned off without loss of marrow fragments, using a Pasteur pipette with upturned point and a water pump. When the fixative is diluted the blood proteins precipitated remain as a flocculent suspension and are removed in the supernatant fluid. A further 100 ml. of distilled water is then added to the flask, which is now agitated gently a few times and allowed to stand until the marrow fragments have again settled to the bottom; the supernatant fluid is then siphoned off. A final washing in distilled water is carried out, and after standing for about 10 minutes the water is siphoned off and 100 ml. of 60% spirit is added.

The marrow should not be left for more than 15 minutes in 60% spirit, as maceration will occur; but this step is useful as it allows practically all of the protein precipitate to be discarded, and only marrow fragments should now remain. The next step is to pass the material through a series of graded alcohols in the same way—that is, siphon off the supernatant fluid and add 20 ml. of the appropriate strength, 70% spirit for 15 minutes, followed by 80% then 96% for 15 minutes each before final dehydration in absolute alcohol, two changes for 15 minutes each. The absolute alcohol is replaced by toluol and left for 10 to 20 minutes until cleared; the fragments are then transferred by a pipette to a small widely conical vessel with a flat bottom. The toluol is pipetted off, replaced by molten paraffin wax (melting-point 54° C.), and the vessel is then put in the paraffin oven for 2 hours, the molten paraffin wax being changed twice during this time. The marrow fragments, after the final change of paraffin, are allowed to settle by gravity and so gather into the small base; consequently if the wax is now hardened *in situ* the block for the microtome has the important material within a small compass. For occasional use a 2-inch (5-cm.) porcelain or silica crucible may suffice, but difficulty may be experienced in removing the paraffin block. Usually the block is removed from the vessel by running a hot knife round the edge and then rapping the crucible smartly on the bench. It must not be heated to melt the paraffin, as the marrow fragments lie directly on the flat base and are easily spoiled by overheating. For regular use we have found it convenient to employ a brass crucible with a detachable apex, so that by unscrewing the apex the block is exposed and may be easily removed. The marrow fragments lie close to the paraffin surface and are ready for immediate cutting; trimming of the block should be avoided in case the minute fragments are lost.

At the 70% spirit stage the specimen may be safely kept for a day or two, and, in fact, may be sent to a laboratory by post if the necessary apparatus for embedding and sectioning is not available. For economy the alcohols are used repeatedly by filtering back into stock bottles through fine filter-paper to remove any marrow fragments.

Sections are stained by the ordinary methods such as haematoxylin and eosin for rapid reports, but a more detailed

study of the marrow is made on sections stained by Maximow's eosin-azure method or by one of the Romanowsky methods. Special stains can, of course, be used; for example we have found Mallory's aniline-blue method of value in the recognition of Gaucher cells in sternal marrow. Microchemical tests for the presence of iron can be applied. Zenker-formol fixative does not prevent the application of the prussian-blue method if brief treatment with warm hydrochloric acid is used (Mallory).

Excellent histological preparations of marrow are obtained which show the general architecture, the proportion of fat and cellular tissue, and the relationship of leucopoietic and erythropoietic tissue to one another and to the supporting framework. The number and disposition of the megakaryocytes are readily assessed, and the presence of abnormal elements is more easily detected than in the smear preparations. We have found that unless large numbers of smears are examined a true impression of the marrow may not be obtained, especially in regard to the megakaryocytes, which are not usually evenly dispersed. Abnormal elements, such as myeloma cells, Gaucher cells, and possibly tumour cells, may be recognized in the sections, and confusion due to admixture of blood does not arise. In a case of aplastic anaemia the marrow sections remove all doubt as to whether the lack of haemopoietic elements in smears is due to failure to obtain a true sample of the marrow. These points are illustrated in the accompanying photomicrographs (see Plate).

Summary

For the interpretation of alterations in bone-marrow architecture the value of histological sections is emphasized as a supplement to the usual smear technique. A simple method is described for the preparation of paraffin sections from sternal-puncture biopsy performed with the ordinary type of needle. Representative photomicrographs illustrate the results obtained.

PAROTIDECTOMY: INDICATIONS AND RESULTS

BY

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[WITH PHOTOGRAVURE PLATE]

To most general practitioners and to many surgeons, the mere mention of complete parotidectomy (Fig. 1, Special Plate) conjures up an apparition with a hideous facial deformity. Superficial lobectomy (Fig. 2, Special Plate) is a far more desirable term than subtotal parotidectomy, but until it is generally conceded that the anatomical classics are inaccurate in their description of the facial nerve—that the facial nerve does not plunge into the main body of the gland and there divide within the parenchyma—the term lobectomy in connexion with the parotid gland is meaningless. To clear up misunderstandings concerning the relationship of the facial nerve, to beg contemporary anatomists to revise their teaching and alter their textbooks in this respect, is only one of the tasks that I have set myself. It is my ambition to dispel deep-rooted beliefs concerning parotid tumours, beliefs almost amounting to old wives' tales.

The Bogy of Facial Palsy

"Leave it alone! If you have it cut out you will probably get paralysis of the face." This was the advice given to the brother of one of my nursing sisters by a comparatively young North of England practitioner; as a result, the patient adamantly refuses to submit to operation. Similar advice was given to another patient by a middle-aged doctor practising on the Welsh border. I mention these examples because most of my patients come from London or the Home Counties, where advice such as this seems to be the rule. Further inquiry convinces me that this attitude

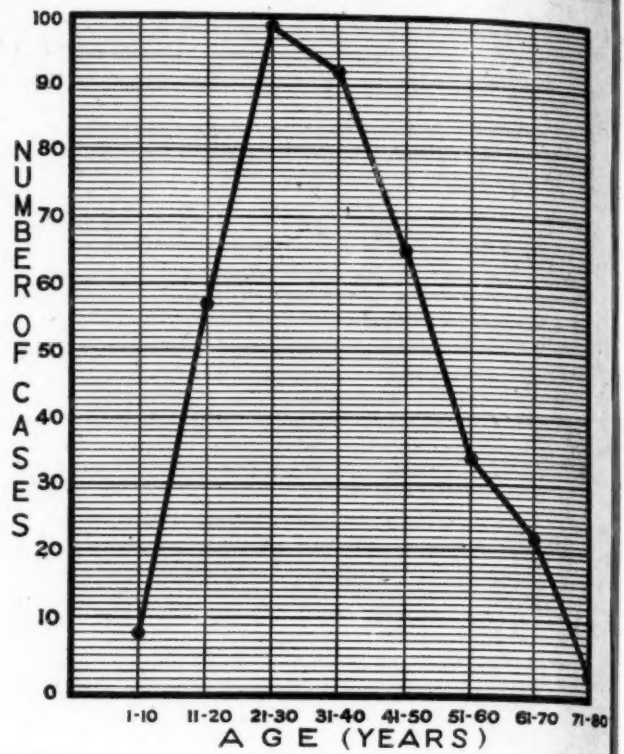

FIG. A.—Ages at which mixed tumours of the parotid gland first appeared (J. McFarland's statistics).

towards operation is adopted by the majority of practitioners throughout the world. Amazingly enough, the profession does not realize that it is only a matter of time before the seventh nerve becomes implicated by the tumour, and that this is a far more frequent happening than facial palsy resulting from the surgeon's knife. Furthermore, when a neoplasm has advanced so far as to cause facial paralysis, it is unlikely that the tumour can be removed *in toto*.

Joseph McFarland,* who held the chair of pathology in Philadelphia, studied parotid tumours for thirty years. Unlike most pathologists, in addition to studying the macroscopical and microscopical characters of the specimens, he investigated the clinical histories of the patients. As a result he pronounced the recurrence rate to be much higher in the case of removal of small as opposed to larger tumours. Kennon, of Liverpool, substantiated this observation. Presumably as the outcome of these well-founded observations there started the pernicious practice of waiting until the tumour got larger. How large has never been stipulated; that has been left to the patient or his doctor to decide. In this connexion it is important to point out that clinically I myself have found it difficult to be sure that a given tumour is small. Some of these swellings feel definitely circumscribed and are movable on the deep structures, yet when they are displayed to the light of day they prove to be veritable icebergs—four-fifths being

*Joseph McFarland died in September, 1945. His daughter, Dr. Helen McFarland Woodbridge, is carrying on her father's collective study of parotid tumours at the School of Dentistry, University of Pennsylvania.

beneath the surface. Again, some of my biggest specimens originated deep in the gland and consequently did not produce the largest excrescences. Therefore a pre-operative clinical photograph does not necessarily reveal the magnitude of the neoplasm.

It is generally conceded that the earlier a malignant tumour is removed, the better. Why in the world should a tumour of the parotid gland be an exception to this rule? The reason is that other misconceptions, notably the illusion of enucleation and the myth of the ugly scar, have vitiated the dictates of common sense.

The Illusion of Enucleation

"I have sometimes seen little tumours the size of peas or little pins' heads in close juxtaposition to the larger, easily recognized tumour" (McFarland). Here is one explanation of the frequency of recurrences, and a strong argument for performing subtotal or total parotidectomy in all cases of mixed parotid tumours. Important as is McFarland's observation, I am convinced that most recurrences are due to incomplete removal of the mother tumour, and my explanation accounts for the well-established fact that small tumours are followed by the early and frequent (30% or more) recurrences. Let us see how this occurs. Through a limited transverse incision the surgeon endeavours to expose the surface of the tumour. The cheek is so richly supplied with blood that, in spite of the application of numerous haemostats, the parotid gland cannot be seen clearly in the depths of the wound. The surgeon therefore largely relies on palpation to define the limits of the swelling. The incision into the gland substance having been deepened, still more bleeding is encountered, and he may or may not define the capsule of the tumour. The smaller the tumour the more likely is this step to prove unsatisfactory. The capsule is opened and an attempt is made to enucleate the tumour with the finger, in much the same manner as an adenomatous prostate gland is enucleated suprapubically. In some large and moderate-sized firm, solid tumours this procedure is accomplished with a sense of satisfaction. In other cases, particularly in small friable tumours and those in which cystic degeneration has occurred, the contents of the capsule are fragmented, or a jelly-like material escapes. It should be evident that even if one cell is spilled in the wound recurrence is possible. Having "enucleated" the tumour, the surgeon who has devoted attention to surgical pathology, and knows that some tumour cells may still be adherent to the interior of the capsule, proceeds to remove the capsule. The smaller the capsule the more difficult is this procedure, especially in a bloody field. The capsule is liable to tear when traction is applied to it. Moreover, the most adherent part of the capsule is its deep aspect. Here the bugbear of injury to a branch of the seventh nerve is often the final deterrent to good intentions. I submit that malignant cells spilled during intracapsular enucleation, or cells left in the interior of a portion of the capsule that has not been entirely removed, account for 90% of recurrences.

Operative Details

Operations on parotid tumours are usually undertaken through transverse incisions. "The smaller the incision the better the cosmetic result" is an uppermost thought in the surgeon's mind. Furthermore, fearing injury to the facial nerve, the surgeon likes to feel that his incision into the gland runs parallel to branches of the seventh nerve. Limited transverse incisions for removing parotid tumours should be abandoned, because it is impossible to determine what type of operation is necessary until the whole gland has been displayed, and any operation that has for its objective complete ablation of the tumour requires full exposure of the whole gland.

The Incision Advised.—The surgeon transfixes the lobule of the ear with Lane's forceps, and retracts the lobule suitably. The assistant stretches the skin of the cheek with the flat of his hand, while a J-shaped incision is made, beginning at the level of the zygomatic arch and proceeding down the side of the face as close as possible to the pinna, curving round the root of the lobule to end on the tip of the mastoid process (Fig. 1, Special Plate). A large flap of skin is reflected by undercutting. If the whole parotid gland is not in view (the gland is a variable structure) the incision must be enlarged still further by extending it down the neck from the tip of the mastoid process, along the anterior border of the sternomastoid. Contrary to what may be thought, this formidable incision leaves a surprisingly inconspicuous scar.

Operation.—No attempt should be made to remove any parotid tumour until the whole gland is in full view. Only then, or even after an extracapsular resection (Fig. 3, Special Plate) has been begun, is it possible to tell how deeply the tumour plunges into the gland. Ligation of the external carotid considerably minimizes the bleeding that otherwise obscures a dissection of the branches of the seventh nerve. The temporofacial division is seen clearly once the superficial lobe has been mobilized. In extracapsular resection sufficient parotid tissue should be removed to ensure that the tumour capsule is not encroached upon. If the tumour is found to extend deeply, rather than risk cutting the branches of the facial nerve this operation should be abandoned in favour of superficial lobectomy. In all operations on parotid tumours the wound should be kept moist with 60% alcohol to shrivel up stray tumour cells that might be spilt inadvertently.

With amazement I discovered it is possible to resect large portions of the parotid gland regularly without the development of the much feared salivary fistula. In my whole series of operations, which has included 33 total or subtotal parotidectomies and about an equal number of extracapsular resections, in only one instance has a fistula resulted, and that was a tiny fistula which did not cause the patient much inconvenience. This healed within a year and remains healed.

Surgical Anatomy

There can be no doubt that surgical enterprise in the parotid region has been stultified by the instruction that surgeons have received, and are receiving, from anatomists.

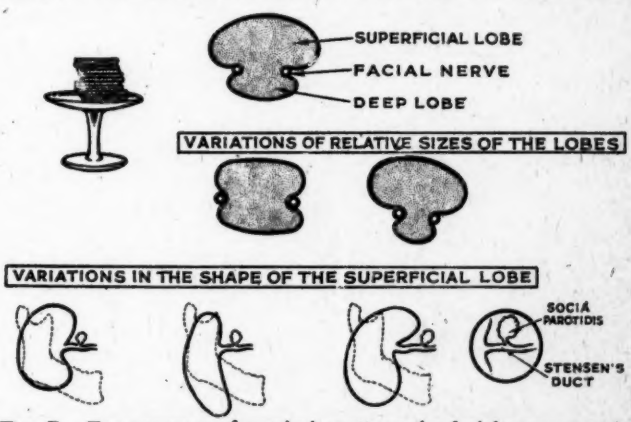

FIG. B.—For purposes of surgical anatomy the facial nerve may be likened to the meat within a parotid sandwich

In 1938, after accidentally coming across the superficial lobe of the parotid gland in the course of an operation, and subsequently being inspired by the anatomical studies of McWhorter (1917), I endeavoured to popularize the conception that the parotid gland is a bilobed structure possessed of a large superficial and a small deep lobe connected by an isthmus. I likened the facial nerve to the meat within a parotid sandwich (Fig. B).

FIG. C.—A comparatively early case of parotid tumour, showing the typical location.

In the anatomical department of the University of Chicago (1945) a medical student, L. J. McCormack, working with Dr. E. W. Cauldwell under the direction of Prof. B. J. Anson, dissected, described, and illustrated the true anatomy of the parotid gland and its relationship to the facial nerve in such a clear and convincing manner that their description is bound to become a classic. Every surgeon undertaking operations on the parotid gland should study this article.

It is, of course, possible for a neoplasm to arise in any part of the parotid gland; nevertheless, most mixed parotid tumours have their beginning in a comparatively circumscribed area—a little in front of and above the angle of the jaw (Fig. C). So constant is this finding that it may be described as the typical location of this neoplasm.

The only other common starting point (and it is very much less common than the foregoing) is in the region immediately in front of the tragus. Here the differential diagnosis between an enlarged pre-auricular lymphatic gland and a mixed parotid tumour is, at the first examination, impossible unless some cause for an enlarged lymphatic gland can be discovered. When such a "gland" does not subside—or, alternatively, if it slowly becomes larger—it is wise to vote for a parotid tumour.

The Pseudocyst

"Mixed tumours are so mixed that their substance may be so soft as to lead the surgeon to suppose that he is removing a cyst" (McFarland). Because the lump feels cystic it is often assumed that the swelling is innocuous. In a few instances the advice has been given to massage the face. One can only assume that those giving this advice envisaged the swelling being caused by obstruction to a branch of the parotid tree, but the patients' histories do not indicate that sialography had been employed to support this hypothesis. True cysts of the parotid are exceedingly rare. In approximately 100 cases of non-inflammatory swellings of the parotid gland that have passed through my hands I have encountered one example only; by sialography this was proved to be due to blocking of a large branch of the parotid tree by a stone. It should be noted that adenolymphomata (papillary cystadenoma lymphomatosum), which are cystic tumours probably arising from the lymphoid conglomerate that surrounds the first branchial cleft, are definitely benign. Such tumours are exceedingly rare, and it is quite impossible to distinguish them from degenerating mixed parotid tumours. It therefore follows that, if such a diagnosis implies that less radical treatment than that for mixed parotid tumours is indicated, then unless the condition is bilateral it is dangerous to attempt to diagnose papillary cystadenoma lymphomatosum clinically.

Irrational Radiotherapy

Numbers of surgeons, I feel sure, are not cognizant of the fact that nearly all parotid tumours are completely radio-resistant. On numerous occasions I have seen patients with parotid tumours who have been steeped in the facial palsy bogy. On hearing of the proposed operation the patients have sought a second opinion—in some instances a greatly respected opinion. In all but one instance radiotherapy has been advised. Accumulated evidence has convinced me that radiotherapy is without the slightest beneficial effect on parotid tumours, except in very occasional cases that are possibly examples of adenolymphoma. McFarland followed up patients with parotid tumours treated by radiotherapy in fifteen hospitals by twenty radiologists; he was unable to find that any benefit accrued from this treatment. Janes, of Toronto, who has studied this subject, knows of no instance where a cure has been accomplished by radiotherapy, but he has observed deep, penetrating radium ulcers and intolerable pain resulting from this treatment. More such evidence is available, but to bring it forward here seems superfluous.

LEGENDS TO SPECIAL PLATE

FIG. 1.—Low-power view of the whole collection of marrow fragments from a case of hypochromic microcytic anaemia. Note the general hyperplasia of the cellular marrow, but the persistence of small fat-spaces indicates that maximal cellularity has not been attained ×15.

FIG. 2.—High-power view of a megaloblastic marrow from a case of Addison's anaemia. Masses of primitive haemocytoblast cells are seen together with later nucleated red cells. There is maximal cellularity with total loss of fat. × 800.

FIG. 3.—Marrow fragment from a case of aplastic anaemia. The diagnosis from examination of the peripheral blood was uncertain between refractory megaloblastic anaemia following pregnancy and marrow aplasia. The condition proved to be completely refractory to treatment, and death occurred from exhaustion following haemorrhages and sepsis. ×330.

FIG. 4.—Marrow showing clumps of Gaucher cells. The case was one of splenomegaly and anaemia with thrombocytopenic purpura in a young woman. Gaucher's disease was suspected on account of the yellowish-brown pigmentation of the skin of the forehead, cheeks, and conjunctivae (pingueculae), and sections of the marrow confirmed the diagnosis. Gaucher cells were not detected with certainty in the marrow smears.

FIGS. 5 and 6.—From an obscure case of reticulosis, apparently of the type of "giant follicular lymphoblastoma." The low-power view (Fig. 5; ×50) shows a small fragment of denser, more darkly staining cells than the surrounding marrow fragments, and the high-power (Fig. 6; ×250) shows clearly that the neoplastic tissue is replacing the marrow in foci. The marrow smears showed merely an increase in mononuclear cells, but an opinion would not be given whether these cells were diffusely mingled with the marrow elements or were derived from metastatic foci of the lymphoid neoplasm.

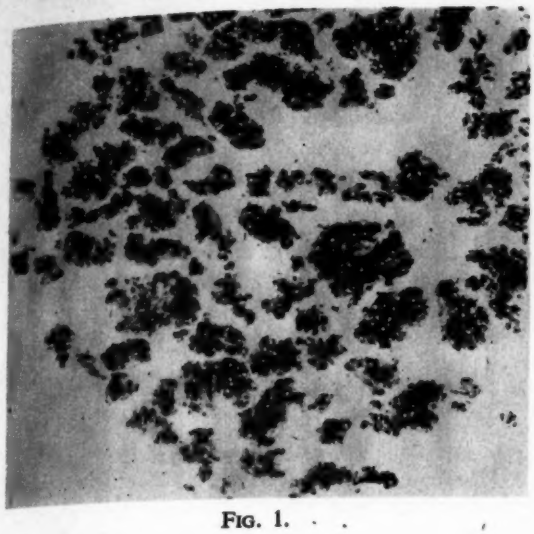

FIG. 1.

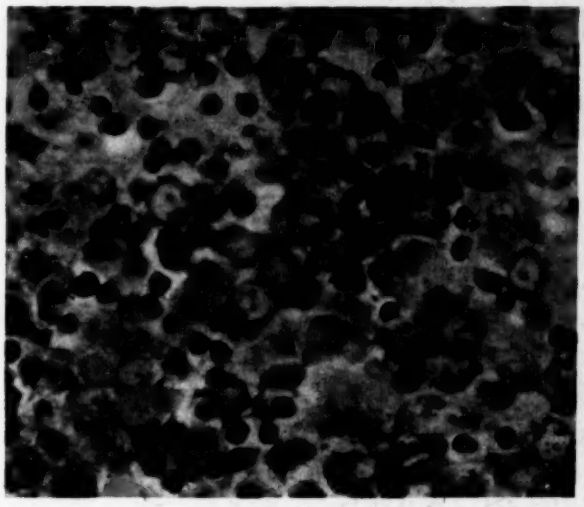

FIG. 2.

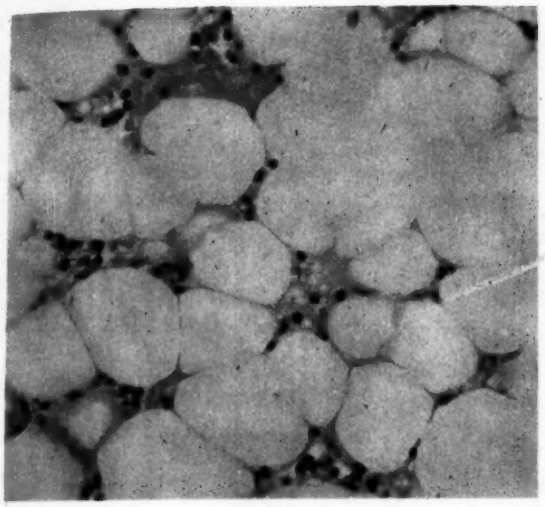

FIG. 3.

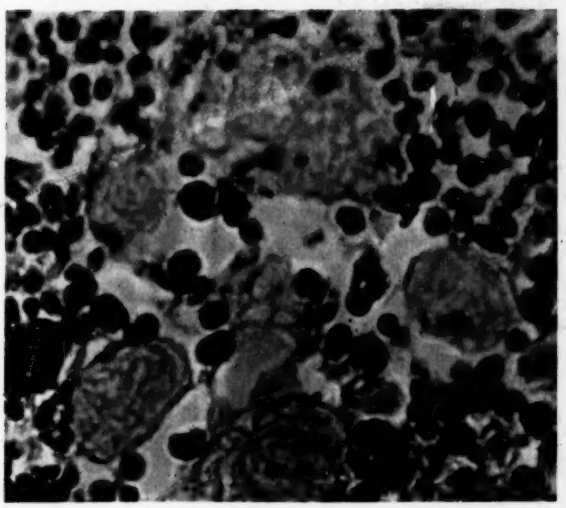

FIG. 4.

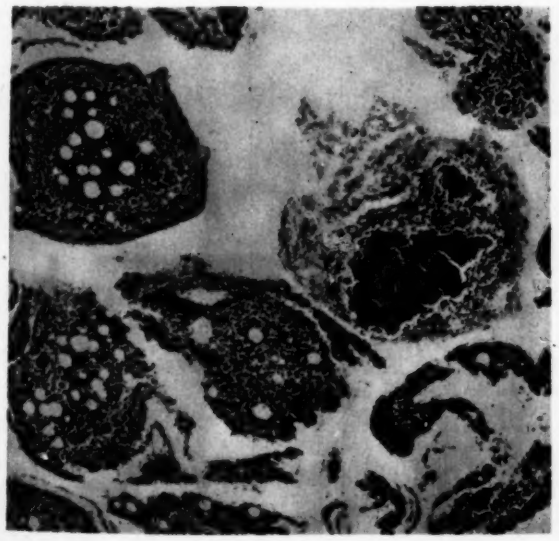

FIG. 5.

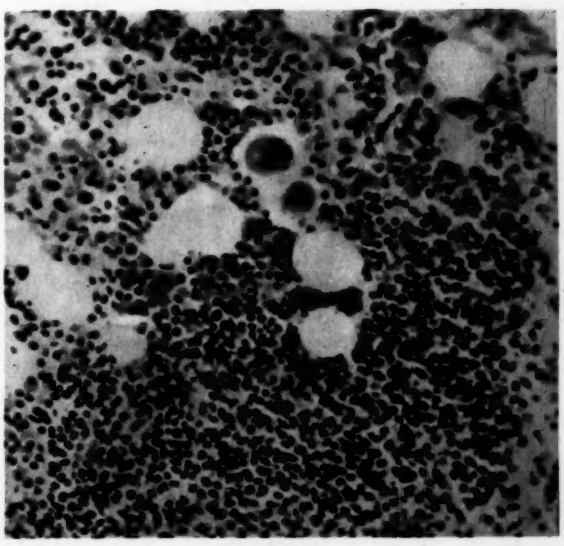

FIG. 6.

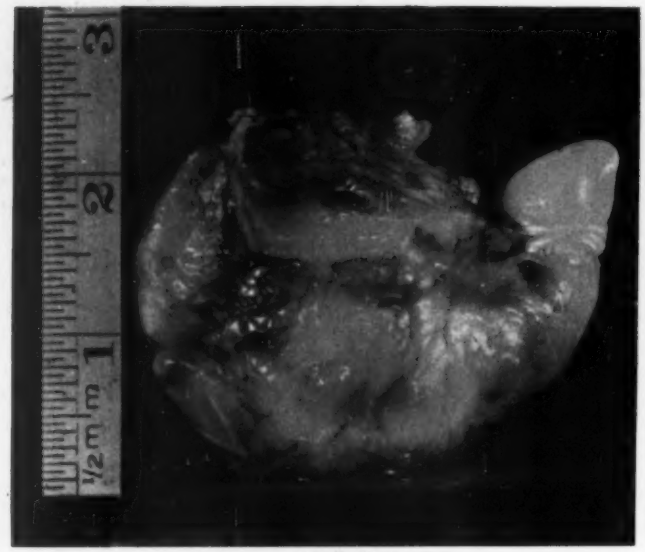

FIG. 1.—Neurofibroma.

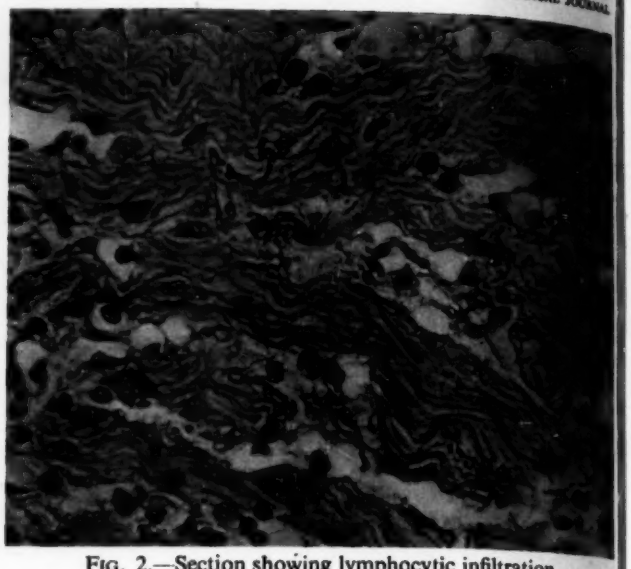

FIG. 2.—Section showing lymphocytic infiltration.

BASAL-CELL CARCINOMA AT SITE OF TRAUMA—T. G. REAH

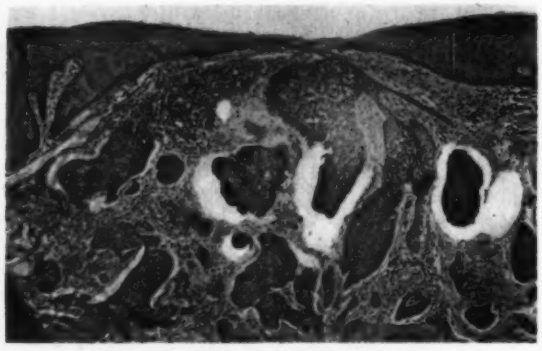

FIG. 1.—Photomicrograph (×40).

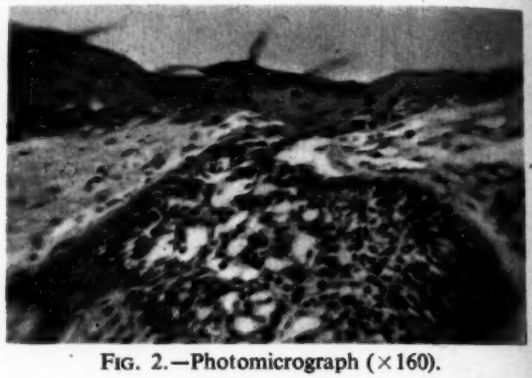

FIG. 2.—Photomicrograph (×160).

TERATOMA OF TESTIS: SPONTANEOUS DISAPPEARANCE OF LUNG METASTASES—J. EWART SCHOFIELD

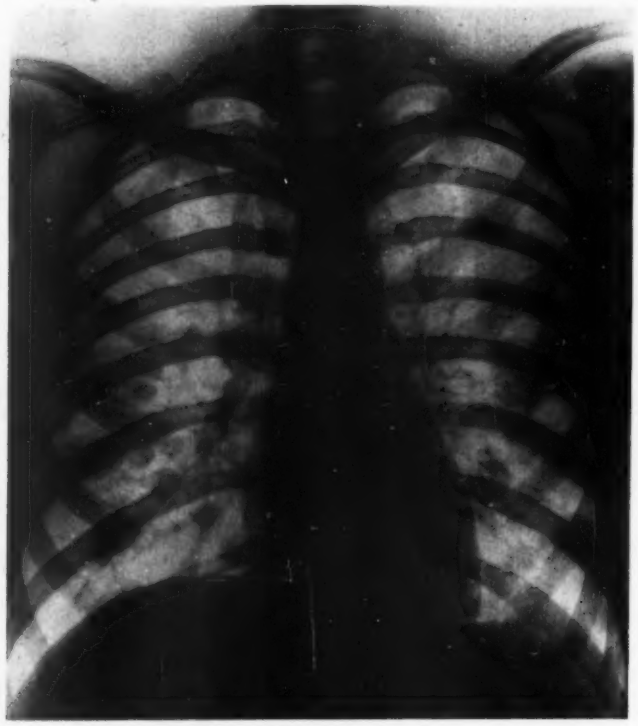

FIG. 1.—September, 1941.

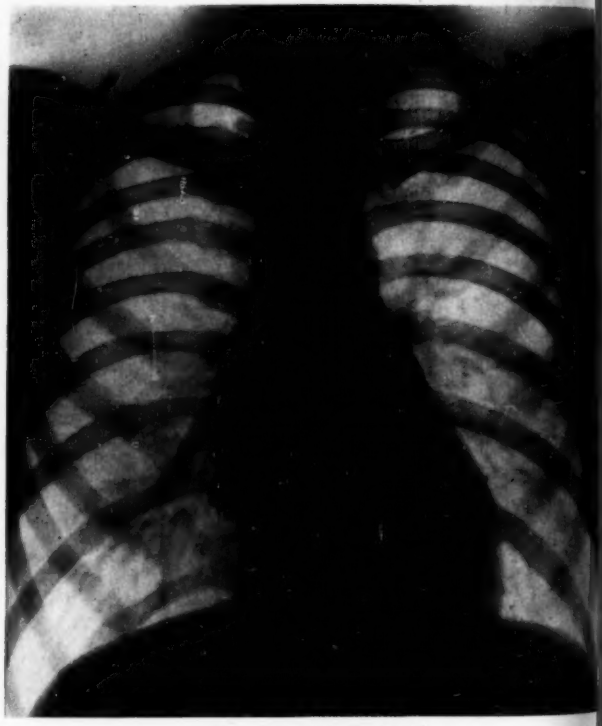

FIG. 2.—March, 1946.

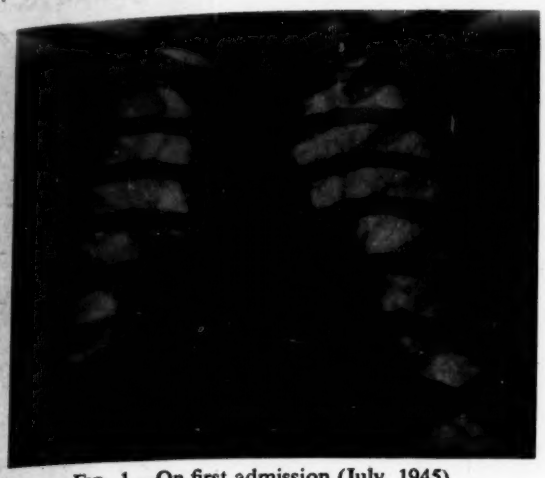

FIG. 1.—On first admission (July, 1945).

FIG. 2.—Shortly before death (May, 1946).

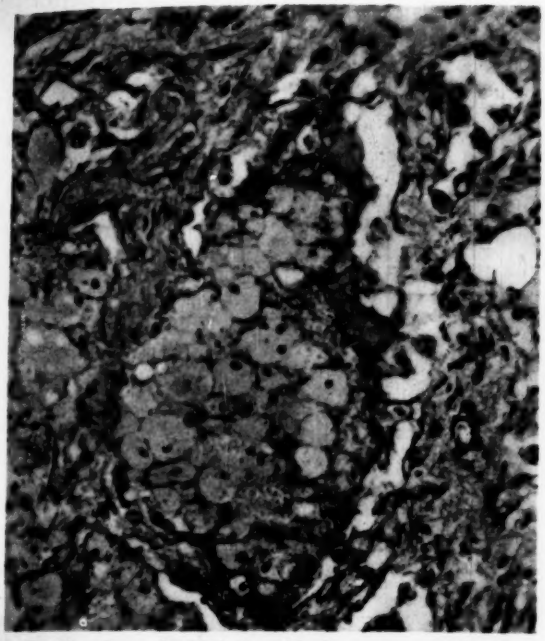

FIG. 3.—Lung (×250) showing foamy macrophages in alveolus.

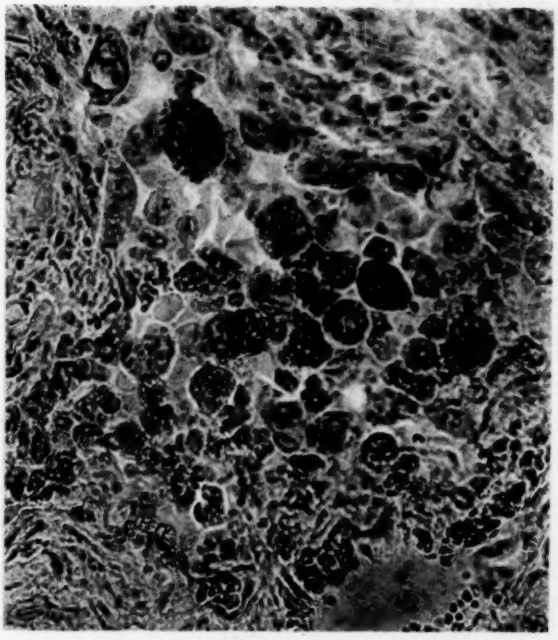

FIG. 4.—Lung (×250), stained with Scharlach R, showing fat globules within the macrophages.

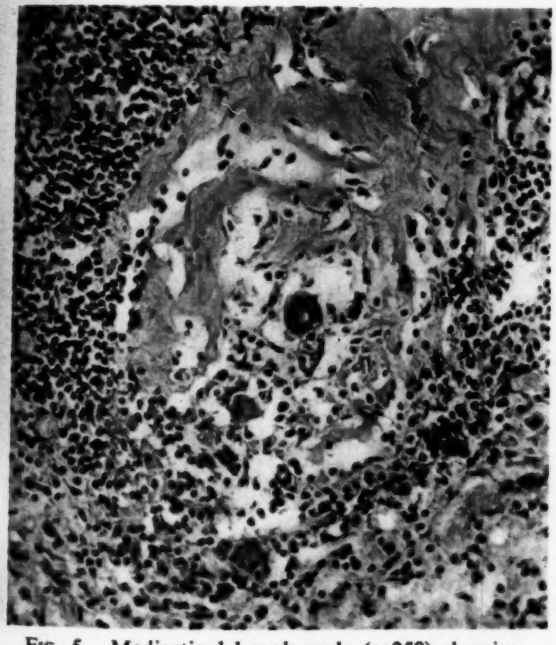

FIG. 5.—Mediastinal lymph node (×250) showing area of fibrosis with "foreign body" giant cells.

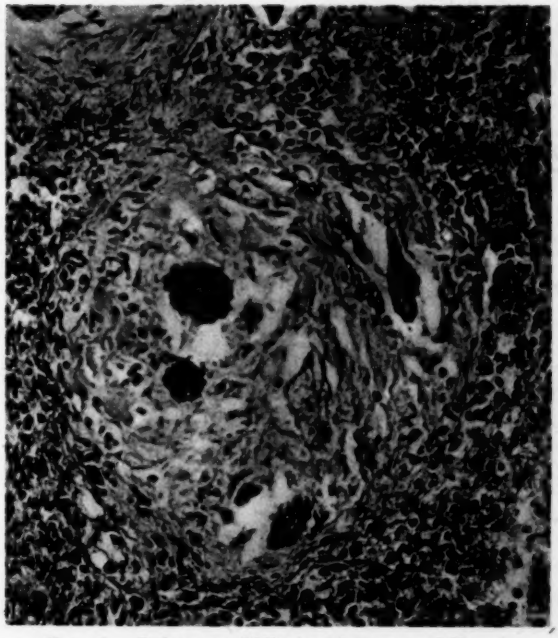

FIG. 6.—Spleen (×250) showing area of fibrosis as in Fig. 5.

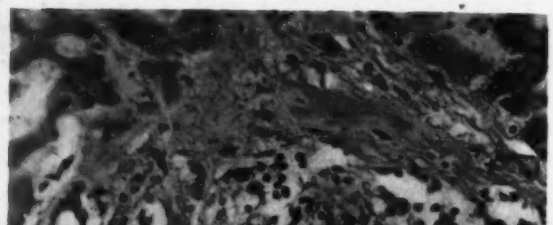

FIG. 7.—Liver (×250) showing area of fibrosis as in Figs. 5 and 6.

FIG. 1.

FIG. 1.—Exposure of the whole gland and ligation of the external carotid artery.

FIG. 2.—Excision of the superficial lobe. Note the temporo-facial division of the seventh nerve.

FIG. 3.—Extracapsular resection of a tumour in the superficial lobe of the parotid gland.

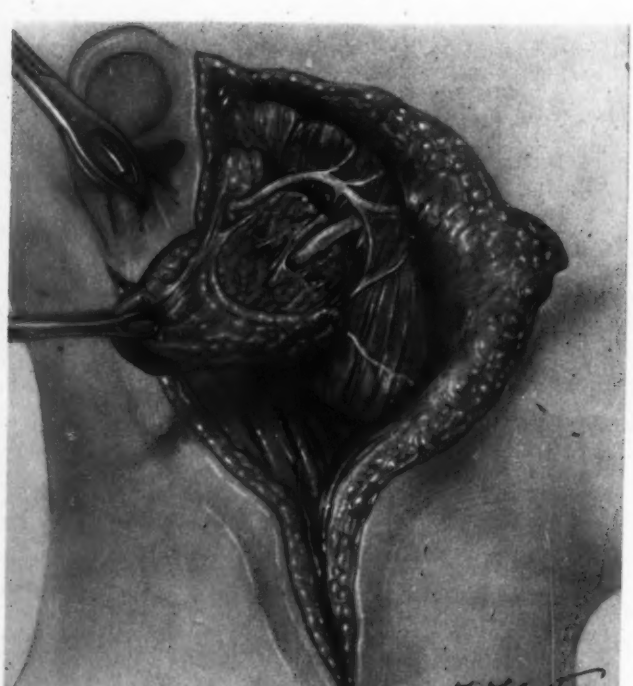

FIG. 2.

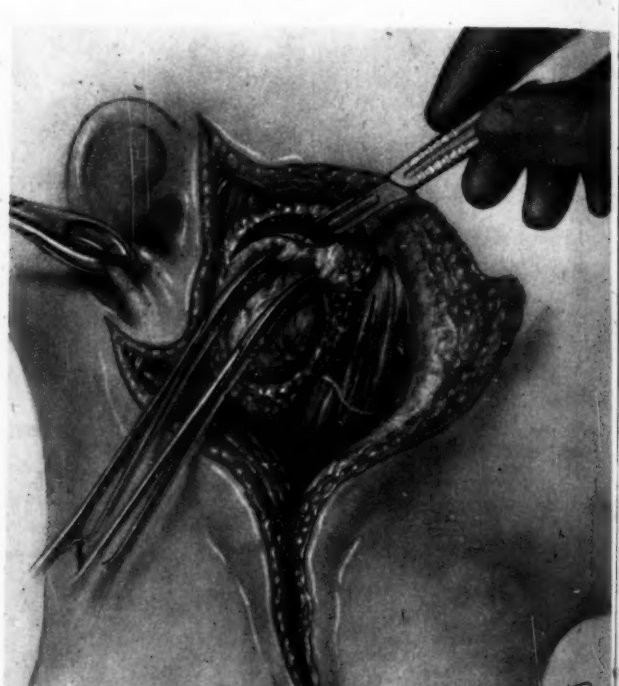

FIG. 3.

Prognosis and Treatment of Facial Palsy

After operations upon the parotid gland that involve dissection of the seventh nerve and the free use of 60% alcohol in the wound, a major degree of facial palsy always occurs; this may persist for weeks or months. In the early stages Pickerill and Pickerill's method of supporting the facial musculature by strips of adhesive plaster cannot be bettered. Later, in cases where drooping of the mouth persists, Dahlberg's internal splint, which is a dental prosthesis, is superior to the hook and chain commonly employed. In four cases where I have known that I have cut a primary division of the facial nerve, the patients, instead of haunting me as I expected, have eventually either completely recovered or recovered to such a degree that they are unaware that the nerve is not functioning fully. This was the second pleasant surprise that I experienced in my sally into this field of surgery, and it equalled my amazement at the non-development of a fistula following lobectomy.

Since studying McCormack, Cauldwell, and Anson's description of the anatomy of the facial nerve, I have verified in the living the anastomotic twigs connecting the temporo-facial and cervico-facial divisions of the seventh nerve anterior to the parotid isthmus (Fig. D). I believe

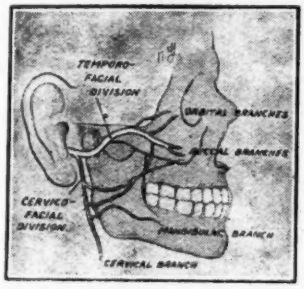

FIG. D.—Showing the anastomotic twigs between the cervico-facial and temporo-facial divisions of the facial nerve. Note that the temporo-facial division is more than twice the size of the cervico-facial division (after McCormack, Cauldwell, and Anson).

that it is the existence of these communications that accounts for the eventual restitution of function of the seventh nerve when one of its primary divisions is known to have been severed.

Even if the main trunk of the facial nerve is cut by accident or design (and I think the former is unlikely given reasonable skill) this is not an occasion to join the melancholy band at the wailing wall. I only wish that all the tragedies of life were as remediable as facial palsy. Certainly my experience of it has been small, but I have found that in the only two examples in which I employed it Lodge's operation of inserting a strip of fascia subcutaneously is most effective. J. B. Brown, by stitching the free fascial grafts to the temporal muscle, claims to mobilize as well as to rectify the drooping of the face. Sheehan's method of utilizing tantalum wire subcutaneously is reported to give results equal to those obtainable by fascial grafting. I repeat that such operations as these are necessary only when the main trunk of the facial nerve has been cut. In my experience this should be a most exceptional occurrence; indeed, if Janes's excellent suggestion is followed and the greater part of the mastoid process is temporarily resected in order to give access to the stylomastoid foramen, the main trunk of the facial nerve can often be found early in the course of the dissection even when the tumour is wedged between the mandible and the skull.

Perhaps what is more to be feared, when nerves in and around the parotid salivary gland have been damaged, is not the muscular palsy but the much less-known auriculo-temporal (Frey's) syndrome. In Frey's syndrome when the patient eats the cheek becomes red, hot, and painful, and beads of perspiration appear upon it. There is also hyperaesthesia of the face, especially during shaving.

Conclusion

As an experienced teacher I am convinced that in the whole realm of clinical surgery there is not a condition that approaches mixed parotid tumours for misconceptions. Here is a neoplasm that remains supremely curable for years, sometimes for a decade or more. Yet because of misconceptions concerning its behaviour and its treatment it is allowed to pass from curability to incurable malignancy. Worse still, while it is yet small and encapsulated, malignant cells, previously locked up by Nature, are let loose by surgical interference (a revolting term beloved of bygone physicians, which in this instance may be used to some purpose).

If these misconceptions can be swept aside and if general surgeons will devote even one-quarter of the time and attention to parotidectomy that they have expended in acquiring the skill to perform such operations as oesophagectomy and total gastrectomy, I believe that Cinderella Tumor Mistus Parotidis, an unadopted child of ultra-surgical specialization, will take her rightful place in a category where our conception of surgical pathology tells us she belongs—absolute curability.

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At the Fourth Annual Conference of the American Group Therapy Association, held on Jan. 10–11, Dr. George E. Gardner, co-director of the Judge Baker Guidance Centre of Boston, suggesting that child guidance clinics in the future would employ treatment groups extensively for young children and their parents, said that the children's group permitted expression of drives in a setting with flexible but definite limitations, where support for ego growth and development was supplied as well as sympathetic and impartial dealing with the children. In the parents' group the therapist served as a catalytic agent in the discussions. She gave authoritative opinions when requested, controlled the outpouring of emotionally charged material, and helped relieve guilt and anxiety in the group members. Both therapists kept in the background except when situations arose that demanded intervention. Dr. Hyman Spotnitz, of the Jewish Board of Guardians, found that through the analysis of the group interviews two trends or forces could be discerned, the reproductive constellation of forces and the inadequacy constellation of forces. These were in constant opposition. The drive to become parents, and better parents than their own, was in opposition to the girls' feelings of inadequacy to achieve these aims. When the former constellation was ascendant the girls were functioning harmoniously as a group: when the inadequacy constellation was ascendant the drives became disruptive and tended to break up the group.

A PLEA FOR LATERAL ORBITOTOMY (KRÖNLEIN'S OPERATION)

BY

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[WITH PHOTOGRAVURE PLATE]

There has been of late a trend to advise exploration of all orbital tumours through the transfrontal route. Such an operation is of course in the province of the neurosurgeon. Perhaps one reason for this is the statement of so eminent a neurosurgeon as W. E. Dandy (1943) that in his experience in 75 to 80% of cases both the orbit and the cranial cavity are involved in a neoplasm which causes unilateral proptosis. Another reason is the reluctance and timidity of some eye surgeons to undertake the surgical approach through the lateral wall of the orbit (lateral orbitotomy—Krönlein's operation)—a route in my opinion fully justifiable, and one to be preferred to the transfrontal approach in the case of a neoplasm the physical signs of which show it to be entirely within the orbital cavity. Increasing hypermetropia may well be diagnostic of a tumour limited to the orbit. Good stereoscopic radiographs of the orbital walls and optic foramina and canals are helpful in excluding extraorbital extension.

Dandy made the following comment about orbital tumours: "As a matter of fact it is rarely possible before operation to be certain whether or not the tumour also lies within the cranial chamber as so many of them do." Harvey Jackson (1945) cannot agree with this statement, and he writes: "In fact my experience is that by careful clinical examination, by judicious radiography and by suitable application of laboratory investigation, not only is the diagnosis of tumour to be reached, but its ramifications regularly revealed and not infrequently its pathological nature surmised." Nevertheless, in discussing treatment he writes: "My opinion concurs absolutely with that of Dr. Dandy in that the transfrontal route is preferable in every way. Through a frontal osteoplastic flap a more direct and more adequate exposure is obtainable, any extension intracranially is approachable, less interference with ocular motility ensues, and there remains no visible and ugly scar. As for the replacement of a prominent eye by one that in addition pulsates, this is untrue."

I think a more direct and more adequate exposure is obtained by lateral orbitotomy in cases where it is known that the neoplasm is limited to the orbit. The suggestion that after lateral orbitotomy the patient has an ugly scar is untrue. By suturing the incision carefully in two layers, by using for the skin a plastic hook, No. 4 eye atraumatic needles, with 00 black silk, and by placing the sutures 3 mm. apart and 2 mm. from the edges of the incision, the scar is reduced to a thin line which is not obvious

The case report given below illustrates failure to remove an orbital tumour by the transfrontal route in July, 1945, and its successful excision through the lateral orbital approach in February, 1946. Incidentally Maurice Drell (1944) also reports a case in which the neurosurgeon failed to find a tumour of the orbit through the transfrontal route. In the following case I came upon the neoplasm quite easily after temporarily removing the lateral wall of the orbit and retracting the external rectus muscle upwards. The neoplasm was dissected from the optic nerve and the eyeball. I do not think the access could have been more direct, and the exposure was certainly adequate. The note made on July 10, 1945, after left transfrontal craniotomy was "no neoplasm visible in the orbit."

Case Report

A woman aged 33 was referred to me by Dr. M. O. Lavin on Dec. 7, 1945. She had left proptosis which she first noticed in August, 1944. About June, 1945, the temporal field of the left eye was lost. She was examined in July and all investigations were negative. Radiographs of the left optic foramen and canal showed no abnormality. At Oxford exploratory craniotomy was done through the left transfrontal approach. The prechiasmal part of the left optic nerve was normal. The roof of the orbit was removed and no neoplasm was seen in the orbit.

On examination on Dec. 7, 1945, she showed café-au-lait patches and soft raised swellings affecting the right arm, back, chest, anterior abdominal wall, and left leg. The left eye was proptosed forwards and upwards, and on looking to the left ocular movements were limited—upwards, downwards, and directly left. Her refraction had been 5.5D myopia and was 1D hypermetropia. The optic disk was oedematous, prominent, and appeared to be pushed forward into the eye. The physiological cup was filled by oedema, there were some highly refractile spots on the nasal side of the optic disk and some streaks extended from its temporal edge into the papillo-macular bundle. The macular area was deeply crimson and surrounded by pigmentary disturbance. Visual acuity was reduced to hand movements. Visual-field loss was severe in the lower part of the field and on the temporal side. In the lower temporal quadrant the defect reached to 3° from the fixation point. She had been advised to have the left eye excised and the orbit partially exenterated.

A diagnosis of neurofibromatosis was made. The clinical findings suggested that the neoplasm in the left orbit lay inside the muscle cone and below the optic nerve, possibly invading either its sheaths or the nerve itself. Radiographs of the optic foramen and canal showed no abnormality. The right eye and right visual field were normal. It seemed justifiable to explore the left orbit through its lateral wall and to remove the tumour by this route, sparing the eye if possible.

On Feb. 7, 1946, lateral orbitotomy was done. A curved incision was made 5 mm. behind the lateral margin of the orbit and coinciding with its curve. From the centre of this a horizontal incision was made posteriorly for 4 cm. These incisions were deepened to the periosteum of the malar bone and the temporal fascia. The flaps thus formed were undermined in the plane of the periosteum and temporal fascia, upwards and downwards and reflected. An incision was made through the periosteum along the lateral orbital margin and this was carefully stripped from the orbital aspect of the lateral wall of the orbit. The space between the periosteum and the bone was temporarily packed with ribbon gauze. The temporal fascia was then incised along the posterior margin of the frontal process of the malar bone, and with a blunt dissector the temporal muscle was stripped from the bone. The space between the muscle and the bone was packed with gauze. The periosteum over the malar bone was incised in line with the inferior orbital margin and reflected for 4 to 5 mm. The same was done 5 mm. above the external angular process. The gauze packs were now removed from the temporal fossa and from the space between the orbital periosteum and the bone and into the latter a metal guard was inserted. About 1 cm. behind and in the same plane as the incision through the periosteum above the external angular process the point of an Archimedean drill was placed on the temporal side of the lateral wall of the orbit. The drill had a stop 5 mm. from its tip. A hole was bored in the lateral orbital wall adequate in size to admit the looped end of Gigli's saw, which was caught on the orbital side of the bone and drawn through and forwards. A saw cut was made forwards and it was completed in the line of the periosteal incision. A loop of Gigli's saw was then passed through the anterior end of the inferior orbital fissure and a cut made through the bone in a plane with the floor of the orbit, emerging in the periosteal incision in the malar bone. The bone joining the drill hole with the interior orbital fissure was then divided with a chisel cut, the quadrilateral piece of the lateral orbital wall was held in bone forceps, removed, and placed in a bowl of warm sterile saline.

The orbital periosteum was then incised postero-anteriorly along the lower margin of the external rectus muscle from the level of the bony floor of the temporal fossa to within 5 mm.

of the orbital rim. The external rectus belly and the periosteum were retracted upwards, and with a blunt dissector the orbital fat was gently separated to expose the neoplasm which lay within the muscle cone below the optic nerve and mainly on its temporal side. The optic nerve was stretched over the neoplasm and displaced upwards and inwards. The neoplasm was greyish-blue, had a smooth surface, was not attached to the globe, and tapered posteriorly towards the apex of the orbit. It was defined by gentle blunt dissection mainly with the gloved forefinger. There was some difficulty in freeing its posterior extremity. Fig. 1 (Special Plate) is a photograph of the neoplasm.

The lateral wall of the orbit was now replaced by a non-touch technique, holding the bone in forceps. The orbital periosteum and temporal muscle fell back into their normal positions. A split rubber drain was passed into the orbit at the junction of the lateral wall and the floor, and another was laid over the temporal fascia parallel to the horizontal incision and emerging from its posterior extremity. The incision was repaired in two layers, the fat and subcutaneous tissues being sewn up with inverted interrupted catgut sutures and the skin edges with interrupted sutures of number 00 black silk placed 2 mm. from the edge of the incision and 3 mm. apart. Vaselined gauze covered the wound, and a pressure dressing was applied over this.

Pathological Report.—The neoplasm measured 30 by 23 by 16 mm. After removal it was yellowish-white in colour and had a smooth glistening surface and a rubbery consistence. Dr. H. F. Brewer's histological report was as follows: "The specimen was a circumscribed tumour of firm consistence and of oval shape, 30 mm. in its longest diameter by 23 mm. by 16 mm. The approximate weight was 5.5 g. (Fig. 1). It was enclosed in a fibrous capsule which appeared to have ruptured at one point. The cut surface had a yellowish-white translucent appearance. Section shows that the tumour consists of a loosely woven tissue in which spindle-shaped cells, the nuclei of which are narrow and slightly curved, run in an irregular interlacing fashion. In the central part there is extensive collagenous change in the stroma; in another small area the tumour is very cellular, but not of a degree to suggest a sarcomatous change. There is a scattered infiltration by small lymphocytes and the tumour is surrounded by a capsule. No nerve elements are recognizable, but the histological and clinical features point to the tumour being a neurofibroma" (Fig. 2, Special Plate).

Post-operative Course.—The drainage tubes were removed 48 hours after operation. The wound healed by first intention, and the lateral wall of the orbit united to adjacent bones in its normal position. The scar of the incision is scarcely visible. Papilloedema was subsiding on the fourth day after operation and had disappeared by the tenth day. Proptosis subsided, but the left eye has remained higher than the right, possibly the transfrontal craniotomy and the removal of the orbital roof may be factors in causing this. There remains slight limitation of action of the external rectus, but all other ocular movements are normal. There is some dusky crimson discoloration around the left macula. Left vision has recovered to 6/6, with −5.25D sphere, and the visual field has improved by 35° in the lower half, where the main defect was present before operation.

Summary and Conclusion

A case is described of unilateral proptosis due to a neurofibroma 30 by 23 by 16 mm. situated within the cone of the recti muscles and beneath the optic nerve. Transfrontal craniotomy had failed to reveal the neoplasm which was removed six months later, after temporary removal of the lateral orbital wall. Vision recovered from hand movements to 6/6, and the visual-field defect improved by 35°.

This case illustrates the value of exploration of the orbit in cases where a neoplasm is suspected as the cause of unilateral proptosis. It shows also that when the neoplasm is limited to the orbital contents and lies behind the eye, the orbit may be effectively explored after temporary removal of the lateral orbital wall. I think this approach route is preferable to transfrontal craniotomy.

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LIPOID PNEUMONIA: A PITFALL IN DIAGNOSIS

BY

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[WITH PHOTOGRAVURE PLATE]

Changes in the lung produced by the introduction of oils appear to have been investigated first by Guieysse-Pellissier (1920), who injected olive oil into the trachea of the dog and the rabbit and found it to be removed from the alveoli by phagocytes without leaving any trace. The process was hastened if tubercle bacilli were ground up in the oil. Corper and Freed (1922) in an investigation of oils then commonly applied to the upper respiratory tract for therapeutic purposes, found that "proliferative bronchopneumonia" followed the introduction of chaulmoogra oil, olive oil, or petrolatum into the lung of the rabbit. Laughlen (1925) reported three cases with the lesions now known to be typical of lipoid pneumonia—two infants receiving liquid paraffin as nasal drops and a man of 37 with "multiple paralyses" taking it by mouth. He attempted to reproduce the condition experimentally, but killed his animals (rabbits) while the lesions were still in their early stages. Pinkerton (1927) reported similar cases, and in 1928 he published the results of experiments designed to discover an oil suitable as a base for the introduction of radio-opaque substances into the lungs. In the course of these experiments he made a thorough investigation of the ill-effects produced by some. He found that when vegetable oils were introduced they produced no tissue reaction and were expectorated in a few days, leaving no trace. Animal oils, however, were first emulsified *in situ* and later attacked by phagocytes. Some of these reached the lymph nodes where fibrosis was set up after two or three months, but others remained in the lumina of the alveoli where the same process occurred. Foreign-body giant cells arose in both sites. Fatty acids produced by hydrolysis were the irritative agents, the total damage that resulted depending on the proportion of free fatty acids present in the original oil and on the rate of its hydrolysis. Chaulmoogra oil was unique in producing acute tissue necrosis from the start. Mineral oils were not hydrolysed; they produced an immediate phagocyte response in the alveolus and were rapidly emulsified. The droplets were transferred to the lymph nodes, but here and in the alveoli fibrous tissue reaction followed far more slowly than with animal oils. In contradistinction to vegetable oils, however, the formation of fibrous tissue was inevitable eventually.

Since these studies several series of cases have been described (Ikeda, 1937; Paterson, 1938; Graef, 1939; Young, Applebaum, and Wasserman, 1939; and Pinkerton and Moragues, 1940). All these except one occurred in infants or in debilitated, aged, or paralysed people who were taking animal or mineral oil by mouth or as nasal drops; the exception was an apparently healthy young woman who was taking cod-liver oil by mouth (Young, Applebaum, and Wasserman, 1939). It is noticeable that only the series of Paterson seems to have been reported in this country, which is surprising in view of the fact that he found as many as eight cases in 813 consecutive necropsies at a general hospital.

The gross lesions reported in the lungs vary from a generalized consolidation by greasy material resembling red hepatization to local areas of fibrosis surrounding a mass

of necrotic tissue and oil which ranges in size from a milium to a "paraffinoma" several centimetres across. Several observers record fibrotic nodules resembling milia in other organs—for example, in liver, lung, and spleen by Pinkerton and Moragues, and in kidneys, adrenals, and ovaries by Young, Applebaum, and Wasserman. These last observers found the fibrosis to be so extensive as to produce arteritis and periarteritis in the kidney, with considerable glomerular damage. In nearly all these cases the diagnosis was unsuspected during life. Where trouble in the chest was suspected (Graef, 1939), radiographs showed shadows near the hilus of the posterior dependent parts, and these did not alter in appearance over some months. Most of the cases were discovered at necropsy, and the cause of death had generally been considered on clinical grounds to be due to other causes. In many the lipoid pneumonia may well have been of only minor importance.

The following case, showing many of the typical features described above, occurred in a healthy young woman from whom no history of the ingestion or aspiration of an oil was ever obtained, and it emphasizes the difficulties in the diagnosis of such a case.

Case Report

The patient was a healthy and intelligent member of the Women's Land Army, aged 19 at the time of death. She was admitted to hospital on July 4, 1945, with an acute febrile illness resembling rheumatic fever with erythema nodosum. Nothing abnormal was found on clinical examination of the chest, cardiovascular system, or the abdomen. The temperature was 100.2° F. (37.9° C.) the pulse 120, and the respirations 22. The fauces were injected, and there were raised red patches on the legs. She did not complain of cough.

A radiograph of the chest (Fig. 1, Special Plate) showed a collapsed right middle lobe and enlarged mediastinal lymph nodes. The patient recovered quickly from her acute episode, and the patches on the legs cleared up. The blood picture was normal, the radiographic appearances were unlike tubercle, and the sputum was repeatedly "negative," and so, by exclusion, a diagnosis of Hodgkin's disease was made, a reticulo-endotheliosis being the only plausible explanation that could be found for enlarged mediastinal lymph nodes in a young woman without changes in the lung fields. Two courses of deep therapy were given without producing any marked change in the mediastinal shadows.

The patient was readmitted on April 30, 1946. She was dyspnoeic, with enlarged neck veins and shallow respirations. The percussion note over both upper zones of the chest was impaired and bronchial breathing was heard there. Radiographs showed an increased mediastinal shadow and infiltrations near the lung roots (Fig. 2, Special Plate). She died on May 12.

Findings at Necropsy.—Recent fibrinous exudate extended all over the pericardial surfaces and a little excess of fluid was present in loculi among this. The air-passages were all acutely inflamed. A small quantity of clear fluid was free in each pleural sac, but the serous surfaces were normal All the mediastinal lymph nodes were enlarged, forming a dense mass which surrounded the main bronchi and compressed them to a moderate degree. The nodes were discrete, but bound together by much fibrous tissue. Their substance was firm, quite uniform in consistency and appearance, and of a definite pinkish tinge. No normal lymphoid tissue appeared to remain at all. The lungs were firm and solid, especially in the upper lobes. No discrete nodules appeared on their surfaces. On gross section the upper lobes were seen to be infiltrated extensively by firm pinkish material which was most abundant near the hilum and appeared to spread out in tentacles through the upper lobes. Its cut surface was quite dry, was certainly not greasy, and showed no sign of breaking down or of surrounding inflammation. Many circumscribed patches of the same appearance lay in the lower lobes. The intervening lung substance revealed oedema but no obvious bronchopneumonia; there were no areas of collapse and no abscesses. The spleen showed prominent follicles but no obvious infiltration. The liver showed only chronic passive congestion. The uterus was menstruating. No other abnormalities were found in any system.

Histological Appearances.—Sections of the lungs prepared from material embedded in paraffin revealed an intense histiocytic activity throughout the alveoli. Many macrophages lay free in the lumina, the cytoplasm of the majority being distended and of a foamy appearance. The endothelium of the alveoli had been shed and fibrous tissue surrounded the macrophages in the lumina, but the extent to which this had taken place varied much throughout the sections. Fig. 3 (Special Plate) shows a typical area. In frozen section the macrophages were seen to be distended with fat globules which stained with scarlet red (Fig. 4, Special Plate). Unfortunately the true nature of the condition was not understood at necropsy, so that sufficient material to identify the fat by differential staining was not saved. In the mediastinal lymph nodes the fat globules were again obvious in frozen sections. Intense histiocytic activity and formation of fibrous tissue were evident and giant cells of the "foreign-body" type were numerous (Fig. 5, Special Plate). Very similar areas were seen in the spleen and liver. These were small, and superficially they resembled tuberculous milia, but on close examination they were seen to contain phagocytes instead of epitheloid cells and the giant cells were once more of the foreign-body type (Figs. 6 and 7, Special Plate).

Discussion

Origin of the Oil.—Careful inquiries were made of the patient's family, friends, employers, and medical attendants to discover whether or not she had come into contact with any oil either as nasal drops, or by mouth, or as a spray in connexion with her work, but no evidence whatsoever was obtained that she had used any such substance.

The Differential Diagnosis.—The diagnosis of lipoid pneumonia would be difficult in the absence of an obvious history of ingestion or inhalation of an oil or fat, especially in a healthy adult. In the above case the early enlargement of the mediastinal lymph nodes in the absence of lung shadows was highly suggestive of Hodgkin's disease, especially with a normal blood picture. As the response to treatment with radiation was so poor, this diagnosis might have been reconsidered, but few alternatives presented themselves, and none with a better prognosis.

The Genesis of the Lesions.—In the above case the great outpouring of phagocytes into the alveoli would seem to indicate that the condition was due to a mineral oil, as found by Pinkerton (1928) and quoted above. The fibrous tissue present in the lung was more abundant than in Pinkerton's cases of this type, but it may well have been due to the deep therapy. However, such fibrosis did develop in his cases eventually. Although developed in response to a chemical irritant, this fibrous tissue has none of the specific character as is seen, for example, in silicosis. The degree of fibrosis developed in other tissues would not seem to depend so much on the nature of the irritant. It is noteworthy that similar lesions may arise in lymph nodes where excess of fat is present from causes other than inhalation. Thus Hill (1937) and Glynn and Rosenheim (1938) found fibrosis and foreign-body giant cells round masses of fat accumulated in the abdominal lymph nodes in steatorrhoea, while Vaux (1943) found foamy macrophages in what may have been earlier lesions of the same nature. It is evident, then, that such irritation may accompany the presence of fat in lymph nodes and may be responsible for the lymphatic obstruction in the sprue syndrome. It may be part of a vicious circle in which more and more fibrosis would lead to the progressive accumulation of fat.

Summary

A case of lipoid pneumonia in a young woman is described. The origin of the inhaled oil is uncertain. The condition is more common than is often supposed and should be considered

as a diagnosis in any case where chronic infiltration of the lung fails to respond to treatment.

The pathology is that of a chronic response to irritation and is produced by animal or mineral oils. In the former case hydrolysis of the oil to fatty acids leads to more rapid development of fibrosis than in the latter. Similar appearances may be seen in the lymph nodes of this condition and of sprue, and it is suggested that they may be of similar origin.

I have to thank Dr. W. Lindsay Locke for the radiographs, Mr. J. F. Carter Braine, Dr. Locke, and Dr. P. R. C. Evans for permission to publish the clinical notes, and Messrs. Ilfords for the photographs.

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TERATOMA OF TESTIS

SPONTANEOUS DISAPPEARANCE OF LUNG METASTASES

BY

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[WITH PHOTOGRAVURE PLATE]

The following report of a case which showed evidence of the spontaneous disappearance of lung metastases will be of interest.

Case Report

In September, 1941, a youth aged 16 was referred to me by Dr. A. Gibson with a swelling of the right testicle. It was the size of a Jaffa orange, heavy, painless, but slightly tender. The cord was thickened. There was an indefinite swelling in the upper abdomen. The Wassermann reaction was negative. The radiologist's report on an *x*-ray examination of the chest read as follows: "Multiple, circular, sharply defined opacities in both lungs. They are of varying sizes, and are largest and most numerous in the lower zones. Intermediate sizes are seen in the mid-zones. There is no surrounding lung reaction around these opacities, the appearance of which is typical of secondary malignant deposits. There is no evidence of tuberculosis. The mediastinal glands are not enlarged." (Plate, Fig. 1.) A diagnosis of malignant testicular tumour with abdominal and lung metastases was made, and, in view of the metastases, the boy's parents were told that operation was not advised and that the expectation of life was only a few months.

In July, 1945, almost four years later, he was referred to me again by Dr. Gibson, who wished to know why the patient was still alive. Indeed, I was extremely surprised to see him myself, and, so far as I could remember, his general appearance had improved. Dr. Gibson stated that during the last four years the testicular tumour had varied considerably in size from that of a duck's egg to a Jaffa orange. The tumour of the right testis felt softer, was slightly fluctuant, and was a little larger than in 1941. An indefinite abdominal mass could still be felt. The *x*-ray appearance of the lungs was rather startling. The radiologist reported: "The only abnormality seen is a small round opacity in the left lower zone. In view of the previous *x*-ray appearance this shadow should be presumed to be a metastasis. The complete disappearance of all the other metastases is remarkable."

It was now considered justifiable to advise surgical treatment, and a right orchidectomy was performed, the cord being divided at the internal abdominal ring. Under the anaesthetic a definite mass of abdominal glands was palpated. Macroscopically the testicle had the appearance of a breaking-down tumour, yellowish in colour, with many cysts and cartilaginous nodules. The report of the pathologist on a microscopical section of the tumour, read: "The tumour appears to be a teratoma of the testicle, surrounded by a fairly dense fibrous capsule. The structure includes various tissues, the most prominent being cyst-like spaces of various sizes, lined with columnar or flattened epithelium. Nodules of cartilage are also present, embedded in the stroma, which is composed of loose fibrous tissue containing fibres of smooth and striped muscle. There are some masses of undifferentiated cells, suggestive of a malignant element, which is common in this type of tumour. It is considered, moreover, that all such testicular teratomata are potentially malignant, and should be treated accordingly."

The operation and convalescence passed off without incident, after which the patient's general condition improved, with increase of appetite and weight. The last report of the radiologist on a recent skiagram of the chest states that there is "no evidence of abnormality." (Plate, Fig. 2.) Despite frequent examination of the abdomen it is difficult to say whether the abdominal mass has completely disappeared.

The unorthodox course of the disease led me to inquire carefully into the patient's habits, occupation, diet, etc., after I first saw him in 1941 and pronounced the case inoperable. It appears that he was employed in a bakery until February, 1942, after which he obtained work in an aeroplane factory for twelve months. Here he breathed an atmosphere containing duralumin dust. From January, 1943, until July, 1945, he did casual work on a farm. He had no peculiar habits or liking for any particular article of diet.

Discussion

It is not intended here to expound on the subject of teratoma of the testis, for the literature on the subject is voluminous. The salient feature of the case described is that the lung metastases disappeared spontaneously. One hears from time to time of the spontaneous disappearance of malignant tumours, but the disappearance of secondary deposits in the lungs must be a rare occurrence. Saleeby (1944) quotes two cases of teratoma of the testis with metastases which recovered, but only after treatment. The treatment consisted of removal of both testicles, for Saleeby wondered if there was a relation between sex hormones and cancer, and thought that some carcinogenic agent is influenced by removal of both testes. One case, his own, was a patient who had a teratoma of the left testis, with a large metastatic retroperitoneal mass. He was treated by bilateral orchidectomy, supplemented by deep *x*-ray therapy. The patient was well after fourteen months, and the retroperitoneal mass had disappeared. The other case quoted by Saleeby was Dr. McClelland's, in which lumbar and lung metastases disappeared within twelve months of bilateral orchidectomy. This treatment was followed up by Harrison (1944), who treated three more cases of teratoma of the testis by bilateral orchidectomy and deep *x*-ray therapy. Reporting these cases, he stated that two of these patients died and the third was rapidly approaching dissolution. Harrison sums up by saying that "there is no clinical evidence to show that the course of the disease was affected by the operation."

In my own case it will be noted that the lung metastases disappeared before the primary growth was removed, and that deep *x*-ray therapy was not given—in fact, there was no treatment of any description. It was only after observing the disappearance of lung metastases that it was decided to remove the tumour of the testicle.

In discussing this subject one cannot fail to draw a comparison with chorio-epithelioma. In this disease a number of cases are known in which lung metastases have disappeared, but only after removal of the primary growth by hysterectomy. Teacher (1935) mentions cases in which

chorio-epithelioma with pelvic extensions has spontaneously disappeared, but does not quote a case of disappearance of lung metastases except after hysterectomy. Comparison with chorio-epithelioma is interesting, as teratoma of the testis can contain chorio-epithelioma, although none was seen in the slide of my case.

I should like to thank Dr. Paul Cave for his reading of the *x*-ray films, and Col. F. R. Coppinger for his opinion on the pathology of the tumour.

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BASAL-CELL CARCINOMA AT SITE OF TRAUMA

BY

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[WITH PHOTOGRAVURE PLATE]

Schrek (1941) in a review of 296 cases found that in five instances patients suffering from a basal-cell carcinoma gave a history of the growth developing on the basis of an old scar. In one case the carcinoma appeared about 15 years after a burn of the forehead; in another it occurred two years after a burn of the hand, while in a third the growth developed 30 years after an avulsion of the scalp. No interval is stated in the remaining two cases, in one of which the growth appeared in a scar on the nose and in the other in scars of the legs following Roentgen-ray burns. Aitken (1944) stated that it is unusual to obtain any history of injury in cases of rodent ulcer, and cited one case where the history was certainly suggestive.

In the following case the history suggests the development of a basal-cell carcinoma immediately after a superficial cannon-shell wound. It should be remembered, however, that in the Middle East the incidence of secondary infection was high and delayed healing of superficial wounds common, and it is therefore impossible to determine the time of onset of malignancy.

Case Report

A regular soldier aged 31 with 13 years' service was admitted to a military hospital in West Africa on Feb. 11, 1946, suffering from a short-term fever. He had served in the Middle East from 1935 to 1944, and in November, 1942, was struck on the right temple by fragments of a cannon-shell from an enemy aeroplane. The injury was superficial, consisting of an abrasion about 1 cm. in diameter, and after the application of a dressing he returned to duty. This abrasion did not heal. In August, 1943, he noticed a sharp edge projecting just above the site of the abrasion, and a spicule of metal about 0.5 cm. long was removed by the regimental medical officer. The puncture hole also did not heal; thereafter both this lesion and the original abrasion slowly increased in size and bled freely if the surfaces were rubbed.

Photograph showing lesions on right temple.

Midway between the outer canthus and the right ear was an ovoid slightly depressed area 3.5 by 1.7 cm., with a finely nodular base covered by pale epithelium except for the posterior 0.75 cm., where the surface was slightly scaly. Immediately above this lesion was another, 1.7 by 1 cm., with an irregular outline covered by a crust and with no characteristic edge (see photograph). There was no clinical evidence of metastases. There were three pigmented naevi up to 0.5 cm. in diameter on the face, numerous pigmented naevi up to 0.3 cm. in diameter on the trunk and limbs, and four pedunculated, pigmented warts on the trunk, all of which the patient stated had been present for years. A piece of the upper lesion was removed by Lieut.-Col. D. H. Mackay, and Major A. F. Mohun reported that it was a typical basal-cell carcinoma (Special Plate, Figs. 1 and 2). I am grateful to them for their assistance.

My thanks are due to Major G. M. Ardran for the photograph of the patient, to L/Cpl. D. Winks for the photomicrographs, and to the D.G., A.M.S., and Col. W. R. D. Hamilton for permission to publish this case.

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FOLIC ACID IN PERNICIOUS ANAEMIA
ITS EFFECT AS SHOWN BY SERIAL STERNAL PUNCTURES

BY

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In bone-marrow films of three cases of pernicious anaemia Davidson *et al.* (1942) observed a considerable decrease in the proportion of early megaloblasts only six to ten hours after a single intramuscular injection of anahaemin or reticulogen. It seemed of interest to investigate the rate of bone-marrow changes following a single oral dose of 50 mg. of folic acid.

In order to present figures comparable with those of Davidson *et al.* the classification of nucleated red blood cells adopted by these authors (cf. explanation to Table I) was used, but cells in mitosis were not differentiated into the various groups. This classification admittedly makes no attempt to differentiate between cells derived from megaloblasts and those developing along normal lines. As stated by those authors, "a certain arbitrary judgment is sometimes necessary for the classification of a given cell which falls on the borderline between groups." A further difficulty is the fact that changes in cell size, in haemoglobinization of cytoplasm, and in nuclear structure proceed during the repair stage of pernicious anaemia at different rates. For instance, after treatment a not inconsiderable proportion of deeply basophilic cells of under 11 μ diameter are found which have a nucleus similar to cells of Type II before treatment; this cell type is characteristic for all conditions in which there is abnormally intense erythropoiesis.

Pernicious anaemia, in a man aged 63, was first diagnosed on his admission to Bethnal Green Hospital in December, 1936; this responded promptly to liver treatment. He was followed up and treated as an out-patient until November, 1937, but failed to attend after that date and has not since had any treatment with liver or stomach extracts. He was readmitted on Aug. 23, 1946, with pernicious anaemia in relapse and with gross

symptoms and signs of subacute combined degeneration of the cord. Haemoglobin, 9.47 g. per 100 ml.; red cells, 2,130,000; M.C.V., 128 $c\mu$; reticulocytes, 3%; white cells, 6,300 (neutrophil polymorphs, 2,331; eosinophil polymorphs, 378; basophil polymorphs, 63; lymphocytes, 3,402; monocytes, 126).

TABLE I.—*Sternal Marrow Counts representing Percentage of 500 Nucleated Red Blood Cells in Each Film*

	Type				Mitoses
	I	II	III	IV	
	%	%	%	%	%
Before folic acid	46·0	22·8	12·4	17·0	1·8
6 hours after	22·8	27·2	33·2	14·6	2·2
12 „ „	10·0	18·4	48·4	20·4	2·8
24 „ „	7·0	17·4	56·6	16·8	2·2
48 „ „	8·4	19·0	45·0	26·2	1·4
Davidson *et al.*:					
Case 1 Before anahaemin	42·0	28·3	24·0	5·7	9·0
Case 1 6 hours after ..	25·7	38·5	25·5	10·3	12·4
Case 2 Before anahaemin	46·2	30·4	9·8	13·6	10·2
Case 2 10 hours after ..	35·8	44·2	13·8	6·2	18·4
Case 2 32 „ „ ..	8·4	53·6	30·8	7·2	14·3
Case 3 Before anahaemin	40·2	38·4	15·0	6·4	14·4
Case 3 8 hours after ..	19·8	51·7	19·7	8·8	11·5

Type I: Cell of average 18 μ diameter; pale nucleus with fine lattice of chromatin, sometimes with nucleoli. Type II: Average 14·2 μ diameter; nucleus more deeply staining and coarser chromatin pattern. Type III: Average 11 μ diameter; cytoplasm basophilic, polychromatic, or orthochromatic; deeply staining nucleus with lumpy masses of chromatin. Type IV: Average 9 μ diameter; polychromatic or orthochromatic, with pyknotic nucleus. Mitotic erythroblasts: Characterized by deeply staining chromosomes (cf. LaCour, 1944). For the cases of Davidson *et al.* mitotic cells are listed separately, but are also included in the figures under Types I–IV.

It is thus seen that folic acid by mouth effected as rapid and extensive a decrease in Type I cells as did intramuscular refined liver extract. The increase in Type III erythroblasts following folic acid as compared with Type II in the series of Davidson *et al.* may be due to a difference in assessment rather than in quality of response.

The rapidity of the change in the bone marrow from a megaloblastic to a normoblastic picture was thought by Davidson *et al.* to support the view "that normoblasts can be derived directly from megaloblasts" and "that megaloblasts and normoblasts belong to one developmental series." Table II shows, however, that the proportion of nucleated red blood cells with deeply basophilic—that is, non-haemoglobinized—cytoplasm is considerably larger six hours after treatment than it was before treatment, the basophilic cells belonging to Types I to III. I have in the past observed the same phenomenon in all cases of pernicious anaemia in which I have examined sternal-marrow films before and shortly after liver treatment.

TABLE II

	Basophilic	Polychromatic	Orthochromatic
Before folic acid ..	24·8	59·4	15·8
6 hours after	57·6	32·2	10·2
12 „ „	43·4	40·6	16·0
24 „ „	57·4	34·0	8·6
48 „ „	45·8	43·0	11·2

Percentages represent 500 nucleated red cells.

The objection that the figures in Table II do not necessarily indicate an absolute increase in the number of basophilic erythroblasts seems refuted by Table III, which shows a probably significant rise, and in any case not a fall, in the erythroblast population.

TABLE III.—*Myelo-erythroblastic Ratio*

	Cells of Myeloid and Lymphoid Series	Nucleated Red Blood Corpuscles
Before folic acid	363	137
6 hours after	340	160
12 „ „	350	150
24 „ „	337	163
48 „ „	294	206

As it seems scarcely possible that a partly or fully haemoglobinized megaloblast should lose all its haemoglobin during its further development, this finding shows that repair in pernicious anaemia is effected by newly produced cells of a non-megaloblastic series. Naegeli (1931) described as late megaloblasts fully or nearly fully haemoglobinized large oval-shaped rather than spherical cells, with an eccentric rather than central, deeply staining, more or less pyknotic nucleus; Israëls (1939) and Wilson (1942) reached the same conclusion. The number of these cells in the films after treatment is quite consistent with the view that they are the cells derived from the early, partly, or not yet haemoglobinized megaloblasts of the untreated marrow, and that they play quantitatively no material part in the repair of pernicious anaemia.

The disturbance of granulopoiesis characterized by the presence in large numbers of giant metamyelocytes and giant band-shaped granulocytes—due, according to LaCour (1944), to nucleic acid shortage of the promyelocytes producing incomplete spiralization of their chromosomes—showed no appreciable change in the four marrow films made after the administration of folic acid. This is in agreement with previous personal observations on marrow films examined one to two days after the beginning of liver treatment, and with the findings of Zuelzer and Ogden (1946) in cases of megaloblastic anaemia in infancy treated with folic acid in which they observed its disappearance only after two to four weeks, whereas in at least one of their cases the megaloblastic pattern had disappeared two days after parenteral folic acid treatment.

I wish to thank Dr. H. A. Ash for the peripheral blood examinations and Dr. I. Doniach for his criticism.

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Medical Memoranda

A Rare Form of Tuberculous Meningitis

Four cases of an unusual variety of tuberculous meningitis occurred in adults in Singapore during the period 1938-42. Each case presented the following features: a period of pyrexia, a period in which spinal symptoms predominated, and a period of meningism passing on to coma and death. Each period lasted about a week.

CLINICAL FEATURES

Pyrexial Period.—There were no pronounced distinguishing features during this time. Three cases were admitted for routine investigation for fever of unknown origin, and the fourth, Col. Rogan's case, for fever associated with diarrhoea. The pyrexia was of a regular remittent type, not rising much above 102° F. (38.9° C.). It was associated with a mild leucocytosis up to 12,000 (80% polymorphs).

Spinal Symptoms.—These were the first symptoms of major importance which distinguished the illness from the ruck of tropical fevers undergoing routine investigation. The first manifestation in all cases was difficulty in passing urine, leading to retention. This was followed within 24 hours by a paresis of the lower extremities which gradually deepened but never became complete. There was diminution of muscle tone, loss of superficial and deep reflexes, and an absent or equivocal Babinski sign. These findings were associated with a rising sensory level, which was peculiar in that it was patchy and extremely difficult to determine precisely. Sensory loss was most marked to pin-prick; hot and cold, postural sensibility, vibration sense.

and touch were little affected. The calves were not unduly tender. There were no root pains. From a consideration of the Chinese cases alone, this might have been beriberi occurring during the course of tuberculous meningitis, in which disease early bladder symptoms are common; particularly as pyramidal release was never demonstrated. The fact, however, that a case occurred in a Sikh and a British soldier practically rules out this possibility. Lumbar punctures performed at various periods during the second week showed: spinal block, a yellowish fluid more green than is usual in Froin's syndrome, and an excess of cells, mainly lymphocytes, up to 500. The protein rose as high at 900 mg. per 100 ml. The tubercle bacillus was never found. In three cases radiology of the spine revealed no pathological change.

Period of Meningism.—This period lasted up to 10 days. It was associated with headache, and as this disappeared the patient became confused. Brudzinski's neck sign was usually not markedly present until well on in the second week—that is, after the spinal symptoms had been in evidence for some days.

PATHOLOGY

A full necropsy was performed on two cases; in two the brain and spinal cord alone were available. Both cases in which necropsy was made revealed subclinical fibroid phthisis without cavitation. The appearance of the spinal cord was characteristic. It looked as if a yellow jelly had been poured into the subarachnoid space and had been allowed to set, but that this had been incomplete in the lower cervical areas. A few tubercles could be found in the meninges of the cord. The brain showed typical small tubercles in the arachnoid, in which acid-fast bacilli were demonstrated. The fluid in the basal cistern was relatively clear. It contained considerably less protein and fewer cells. Section of the cord showed very little save peripheral commencing degeneration of myelin round the full circumference of the cord (osmic acid) to the depth of about 2 mm.

COMMENT

This syndrome is recorded mainly because, though known to occur, its features are not referred to in standard works. On this account the first case caused considerable difficulty; in fact it was not diagnosed correctly until the necropsy. Since that time we have not seen an exactly similar case, though Dr. Purdon Martin recently had one at Queen Square, in which the cerebrospinal fluid findings early on tallied with the above. Dr. Greenfield, in discusing this case, remarked that in his experience when the cerebrospinal fluid protein was very high he has been unable to demonstrate tubercle bacilli. In view of the necropsy findings cisternal fluid might be more productive. It is worthy of comment that Lieut.-Col. J. M. Rogan, to whom our thanks are due, correctly diagnosed the British case during the period of the spinal phase from his knowledge of the Asiatic cases.

G. A. RANSOME.
E. S. MONTIERO.

Nicotinamide and Diabetes Mellitus

The water-soluble vitamins have been shown to play a part in enzyme systems involved in the oxidation and fermentation of glucose, and the beneficial action of yeast in the treatment of diabetes mellitus has been recognized for over 50 years. Dienst in 1939 reported the results of experiments on six human diabetics: his patients were given diets of known carbohydrate, protein, and fat content, and after stabilization and control over a period of several weeks the diets were supplemented with vitamin B (whole group) and ascorbic acid. He reported that the sugar tolerance in all cases was much improved thereby, and concluded that this was due to the action of thiamine and ascorbic acid. In 1937 Martin had shown that the existence of a multiple vitamin deficiency increased the insulin requirements of depancreatized dogs, but did not form any definite conclusion as to the precise role of the vitamins in treatment. Gaebler and Ciszewski (1945) fed three depancreatized dogs on a standard diet with added pancreatic enzymes and yeast. The minimal dose of insulin necessary to control glycosuria was inadequate when yeast was removed from the diet, and glycosuria was abolished after 12 days when the ingestion of yeast was resumed. The effects of yeast could be produced with thiamine, riboflavine, nicotinic acid, inositol, pyridoxine, pantothenic acid, and para-aminobenzoic acid. In one animal no relation between the insulin requirements and the water-soluble vitamin intake could be demonstrated, and in the other two dogs thiamine, riboflavine, and nicotinic acid given together only delayed the onset of glycosuria. From this it may be concluded that although yeast prevents glycosuria in depancreatized dogs under the conditions of this experiment it is not possible to state which component of yeast is solely responsible. They were unable to confirm Dienst's view that an excess of ascorbic acid was beneficial in reducing the insulin requirements.

PRESENT INVESTIGATION

There is then some clinical and experimental evidence that yeast and the water-soluble vitamins can reduce the insulin requirements in human diabetics, but there still exists considerable doubt not only as to the active principle concerned but also as to its mode of action. The case described by Gordon in a recent letter of a male diabetic aged 40, not on insulin, who seemed to have his tolerance for sugar increased by large doses of nicotinamide (1,200 mg. daily for one month) is therefore of considerable interest in this connexion. We decided to investigate further the effect of nicotinamide on diabetics under control conditions in hospital. Accordingly six adult diabetics who were adequately stabilized without insulin on a fixed diet of 1,800 calories were chosen. They fell in the age group 40–65. Sugar tolerance estimation was performed after a few days' observation, and nicotinamide in a dose of 600 mg. t.i.d. was given by mouth for 14 days. Sugar tolerance estimation was repeated at the end of this period, and meanwhile daily blood sugar estimations had been performed. Surprisingly few side-reactions were observed from this large dose of nicotinamide, the most constant being a general feeling of warmth and occasional severe flushing and tingling of the skin, face, and extremities. In no case did the sugar tolerance curve improve on this therapy, and the daily blood sugar levels were consistently steady throughout. As an example, one case will be described in more detail.

CASE REPORT

This was a married woman aged 52, with no family history of diabetes, who had been a known diabetic for 12 months. She was admitted to the Manchester Royal Infirmary, under the care of Prof. T. H. Oliver, from the diabetic clinic. The sugar tolerance on July 4, 1946, was as follows:

Fasting blood sugar	216 mg.	per 100 ml.
Blood sugar 1/2 hour after 50 g. glucose	310	" "
" 1 " " "	320	" "
" 1½ hours " "	340	" "
" 2 " " "	310	" "
" 2½ " " "	255	" "

Sugar was present in the urine throughout. She received 1,800 mg. nicotinamide daily for 14 days with only slight flushing of the face and occasional tingling of the hands and feet. A sugar-tolerance test was repeated on July 18, with the following result:

Fasting blood sugar	226 mg.	per 100 ml.
Blood sugar 1/2 hour after 50 g. glucose	300	" "
" 1 " " "	335	" "
" 1½ hours " "	365	" "
" 2 " " "	350	" "
" 2½ " " "	315	" "

She has been seen on subsequent occasions in the out-patient clinic and there has been no change in her diabetic condition.

COMMENT

Although it is realized that the findings in six cases are inadequate for definite conclusions, there is no evidence that nicotinamide alone does influence the sugar tolerance or improve the diabetic condition.

I am indebted to Prof. T. H. Oliver for his help and co-operation.

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Reviews

BIBLIOGRAPHIC INDEX OF LEPROSY

Indice Bibliografico de Lepra, 1500–1943. Volume I. A.–H. By Luiza Keffer. (Pp. 674. No price given.) Brazil: Sao Paulo, Rua Conde de Sarzedas, 38.

Luiza Keffer and the other members of the staff of the library of the Leprosy Prevention Department of the State of Sao Paulo, Brazil, have rendered a great service to leprologists all over the world by their ten years' labours in preparing this monumental *Bibliographic Index of Leprosy*, the first volume of which has now appeared. All the works and papers included are in their library; but it is much more than a catalogue of papers, for the contents of each have been entered on card indexes, and all the more important points, which amount to eleven in a sample mentioned in an explanatory preface in French and English, are separately entered. For example, under "Diagnosico" twenty-five double-column pages, with a number of subheadings, repeat the full references to papers which also appear under the authors' names. This multiplication of entries of each paper adds much to the convenience of reference, although it also greatly increases the bulk and accounts for the first volume of 674 pages covering the ground only from A to H. The completeness of the entries of all publications for several decades back is shown by eleven columns being devoted to the publications of the Brazilian authority H. C. S. Araujo and five to the writings of R. G. Cochrane. Again, fifty-two columns are devoted to the heading of chaulmoogra.

The entries are not limited to purely medical publications, but include those dealing with juridical, social, and literary points of view; yet the author modestly writes of this "unpretentious work." On testing its completeness we have found only a few omissions of works of seventy or more years ago, such as those of L. Hillis, Brouse, and Hildebrand, which have doubtless long been out of print and so are not available to the great Brazil library. This work should find a place in every medical library, including those of leprologists engaged in investigations on a subject which is attracting the ever-increasing attention of the medical profession and of sociologists.

LEONARD ROGERS.

MIND AND NERVE

Éléments de Psycho-Physiologie. By Henri Roger. (Pp. 428. 350 francs.) Paris: Masson et Cie. 1946.

This is an important account of the relation between the study of the physiology of the nervous system and of psychology. The author believes with Claude Bernard that psychology should be regarded as a chapter in the book of physiology, though he allows that this chapter is of such significance that it may overshadow the rest of the book. His philosophical outlook is deterministic though not bigoted. Man's behaviour is determined by a conflict between the impulsions of his innate instincts and the code of action imposed upon him by his environment (cf. the Freudian id and superego). Sometimes one is in the ascendancy and sometimes the other, but Dr. Roger scarcely admits that the individual himself has any share in determining the result.

The book begins with a historical survey, followed by a description of methods of study of psychophysiology. The essential data are instincts and intelligence; the author does not think that there is any essential difference between the two. If the subject is studied from the evolutionary and phylogenetic viewpoint it is possible to trace the development of instinctive response to environmental stimuli progressing *pari passu* with brain development up to the diencephalon, and then, with the appearance of the cortex, the emergence of intellectual response to similar or analogous stimuli. For example, Roger claims that it is possible to trace progress from the instinct to eat to the art of cooking and the science of dietetics, from the herd instinct to the social services and the organization of human family life, and so on. He recounts such knowledge as we possess of the cerebral function which underlies intelligent behaviour, as well as emotional manifestations and the formation of the sentiments. In the last part the more difficult psychological problems such as free will, sleep, dreams, and conscious and unconscious behaviour are dealt with along the same lines. While many psychologists think that any attempt to correlate their studies with physiological processes is an undue curb on their ideas, and many physiologists consider that psychological correlations are often unscientific and nothing but "viewy" theories, the psychiatrist and the medical practitioner must glean what they can from both camps. Roger's attempt to yoke psychology to physiology repays study.

MATERIA MEDICA

Materia Medica for Nurses. By Lois Oakes, S.R.N., D.N., and Arnold Bennett, M.P.S. Second edition. (Pp. 354. 7s. 6d., plus 6d. postage.) Edinburgh: E. and S. Livingstone. 1947.

Repertorium Pharmazeutischer Spezialpräparate, Sera und Impfstoffe. By Dr. Herbert Ludwig. (Pp. 1308. 48 Swiss francs.) Basle: Verlagsgesellschaft Beobachter A.G.

The first is a textbook of suitable size for nurses and can be recommended. It is well printed and easy to read, and the diligent student who masters its teaching will one day be a ward sister of great competence. The brief description of the uses of different drugs is not always accurate (for example strophanthus is said to have an antipyretic action), and the authors would be well advised, when preparing the next edition, to check their statements by reference to a standard work, such as *Pharmacology*, by J. H. Gaddum.

The other is a book of reference, prepared in Switzerland, of all kinds of pharmaceutical specialties made by firms in every country. It should be of value to those who are asked by a patient for some new foreign medicine he has heard of. The different preparations are given in alphabetical order—the name of the firm; the components, though not the amounts; the indications for prescribing the preparation (too briefly); the size of packings and the price; the dose; the date when the preparation was introduced. It is written in German and is a tome of 1,300 pages, so the list of preparations should be fairly complete.

J. H. BURN.

ELECTROCARDIOGRAPHY

Electrocardiography. Including an Atlas of Electrocardiograms. By Louis N. Katz, M.D., F.A.C.P. Second edition, thoroughly revised. (Pp. 883; 525 engravings, including over 1,000 electrocardiograms. 60s.) London: Henry Kimpton. 1946.

Exercises in Electrocardiographic Interpretation. By Louis N. Katz, M.D., F.A.C.P. Second edition, thoroughly revised. Pp. 288; 141 engravings, containing 166 electrocardiograms. 30s.) London: Henry Kimpton. 1946.

New editions of these two companion volumes, by Dr. Louis N. Katz, have appeared four years after the first publication of this work. Extensive revision, a considerable increase in size, and the addition of more than a hundred illustrations to *Electrocardiography* indicate the growth of this subject.

In electrocardiography to-day attention is being focused on the chest leads. The author now employs CF_2, CF_4, and CF_5 as a routine. In these leads the left leg is paired with electrodes placed in turn just to the left of the sternum, in the midclavicular line, and in the anterior axillary line. He rightly insists that the addition of one chest lead, say CF_4, to the limb leads is not an adequate procedure. However, omission of any one of the six chest leads may result in failure to demonstrate an infarction of the heart, though in practice it is hardly feasible to take all six leads in every case of heart pain or suspected myocardial disease. The problem therefore becomes one of deciding which chest leads are most appropriate as a routine and in particular cases. In Britain chest leads are more usually paired with the right arm, and most workers here would agree that CR_1 or CR_2, with CR_3 and CR_5, are those most likely to give useful information. With regard to variations of the normal, Dr. Katz shares the experience of others in finding that previous standards of normality were rather too rigid; this adjustment of outlook is the result of combined cardiographic and radioscopic observations of large numbers of normal recruits for military service.

The volume of exercises in interpretation has undergone modification and substitution of records in conformity with the

revision of the main work, which remains one of the standard books on the subject and one to which great care and exhaustive study have manifestly been given at every stage in its production.

SPECIAL SURGERY

Spezielle Chirurgische Therapie für Studierende und Ärzte. By Dr. Max Saegesser. (Pp. 884; illustrated. 80 francs.) Berne: Medizinischer Verlag Hans Huber.

The best part of this book is the illustrations; the worst is the binding, the copy sent to us being already partly disintegrated despite careful handling. This may be the result of present conditions, but it is regrettable, for the quality of print and paper, like the illustrations, is good. The whole field of general surgery is covered—eye, ear, nose, and throat, and gynaecological operations being excluded. There are special articles on tetanus and shock and haemorrhage, but the book is essentially a practical guide to operative surgery. The text is written in German and lavishly illustrated by line drawings, a type of illustration which is particularly suitable for works of this character and could be more often used with advantage in English textbooks.

For the most part the pen-and-ink sketches interspersed among the lines of text are accurate, but Fig. 10, page 20, shows the cervicofacial division of the facial nerve at too high a level and an incision at the angle of the jaw which would almost certainly divide it. Although facio-hypoglossal and facio-spinal accessory anastomosis are briefly mentioned in the section on facial palsy, correction of the condition by fascial slings is the only method illustrated. A relatively long article on the treatment of trigeminal neuralgia emphasizes electrocoagulation of the gasserian ganglion, a procedure widely popular on the Continent but not in favour in this country. Methods of injecting the ganglion are illustrated but not the surgical approach to the root or tract. The sections on intestinal and genito-urinary surgery are perhaps the fullest and best, from which we suspect that here may lie the chief interest of the *Privatdozent*. Figs. 141, p. 446, and 142, p. 449, are identical and there would appear to be no need for the repetition. The least elaborated part of the book is that dealing with the surgery of the nervous system, particularly in comparison with the detail devoted to other systems. On the whole the field of surgery is fairly well and evenly covered, and as a textbook for students and practitioners it may be said to live up to its title.

PHYSICAL METHODS IN PSYCHIATRY

Shock Treatments and other Somatic Procedures in Psychiatry. By Lothar B. Kalinowsky, M.D., and Paul H. Hoch, M.D. Foreword by Nolan D. C. Lewis, M.D. (Pp. 294. 21s.) London: William Heinemann Medical Books. 1946.

This book by American authors covers the same ground as the much smaller book in which Sargent and Slater two years ago presented the new physical methods of treatment in psychiatry. Treatment by insulin coma and by artificially induced convulsions—still unfortunately misnamed "shock treatments"—are discussed in great detail. Other physical procedures are recorded in a more perfunctory manner: the chapter on prefrontal leucotomy obviously suffers from the limited personal experience of the authors. The introduction of physical methods on a purely empirical basis has provoked not only many fairly well substantiated claims of success, but also a flood of theoretical papers—many of them absurd or fantastic.

Unfortunately the authors do not provide much guidance through the international literary jungle catalogued in 37 pages of bibliography. They have much personal experience of the two main therapeutic methods and are critical in evaluating their own results; but they frequently succumb to obsolete or hypothetical interpretations, and in presenting the techniques they put the unessential and fanciful side by side with the important and practical. It is too often left to the reader to sift the chaff from the wheat, and the book is therefore unsuited to the beginner. The more experienced student will find it a serviceable compilation of facts, but will look in vain for a leading idea behind the review of opinions. Even in the concluding chapter on theories the authors do not risk adopting a theory of their own and carefully avoid any partiality.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

1946 Year Book of General Surgery. Edited by E. A. Graham, A.B., M.D. (Pp. 679. 21s.) London: H. K. Lewis. 1947.

Penicillin in acute appendicitis is discussed and there are articles on the surgical significance of accessory spleens, cerebral abscess, and peritoneal or skin grafts fixed with fibrin to prevent leakage after intestinal anastomosis.

The Irish Medical Directory. Ninth edition. (Pp. 358. 15s. 6d.) Dublin: Parkside Press. 1946.

This directory includes articles on penicillin and sulphonamides in surgery.

Charles-Édouard Brown-Séquard. By J. M. D. Olmsted, M.A., Ph.D., D.Sc. (Pp. 253. $3.00.) Baltimore: Johns Hopkins Press. 1946.

Three biographical lectures on the great neurologist, with a bibliography in English.

Die Hormonalen Aspekte Des Fortpflanzungsprozesses. By Dr. Jules Samuels. (Pp. 152. No price.) Amsterdam: Holdert. 1946.

An account of the relation between hormones and the reproductive cells; in German with an English summary.

Médicaments et Médications. By H. Harant. (Pp. 133. No price.) Paris: Presses Universitaires de France. 1947.

A short account of materia medica, with a chapter on physiotherapy.

Who's Who in Parliament. Compiled by Carol Bunker. (Pp. 176. 6s. paper covered, 7s. 6d. cloth covered.) London: St. Botolph Publishing Company. 1947.

Summarized biographical details of members of the present Parliament.

Total War at Haverington. By Josephine Bell. (Pp. 336. 10s. 6d.) London: Longmans, Green. 1947.

A novel whose setting is an imaginary small town in the Thames valley in wartime.

Rezeptierkunde. By Prof. T. Gordonoff. (Pp. 112. 7.50 Swiss francs.) Berne: Medizinischer Verlag Hans Huber. 1947.

A short guide to the writing and compounding of prescriptions.

For Doctors Only. By "Hugh Selwyn." (Pp. 64. 5s.) Ipswich: Harrison. 1947.

An amusing account of crises in medical practice.

The Middlesex Hospital Medical School Collected Papers.

Papers on a variety of topics from the Middlesex Hospital.

Psychiatric Interviews with Children. By various contributors. Edited by Helen L. Witmer. (Pp. 443. 25s. 6d.) London: Geoffrey Cumberlege; New York: The Commonwealth Fund. 1946.

Collected records of psychiatric treatment of children in American child guidance clinics with comments by the editor. Intended for students and practitioners of child psychiatry.

Health Insurance in the United States. By N. Sinai, Dr.P.H., O. W. Anderson, and M. L. Dollar. (Pp. 115. 8s. 6d.) New York: The Commonwealth Fund. 1946.

A discussion of the history and organization of voluntary health insurance in the United States.

Health Reform in New Zealand. By Douglas Robb, M.D., Ch.M., F.R.C.S., F.R.A.C.S. (Pp. 103. No price.) London: Whitcombe and Tombs. 1947.

An account of the public health services in New Zealand, with suggestions for their improvement.

The Fighting Irish Doctor. By E. F. St. John Lyburn, B.Ch., B.A.O., M.B. (Pp. 199. 8s. 6d.) Dublin: Morris. 1947.

An autobiography by a doctor who is a fighter with gloves and with words.

The Earth's Green Carpet. By Louise E. Howard. (Pp. 219. 8s. 6d.) London: Faber and Faber. 1947.

A simple exposition of Sir Albert Howard's ideas on agriculture by his wife, with particular reference to soil fertility.

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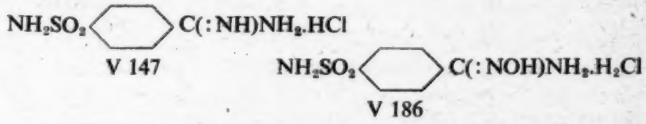
BRITISH WARTIME INVESTIGATIONS OF TYPHUS

Louse-borne typhus has in the past often been one of the most dreaded accompaniments of war. In 1938 it had already appeared in Spain as a sequel to the civil war. It is therefore not surprising that early in the war of 1939–45 organizations were set up both in the U.S.A. and in Great Britain to inquire into the best means of preventing and treating a disease which might so readily have caused havoc throughout Europe. In Britain a team of workers drawn from the staff of the National Institute for Medical Research and from the personnel of the R.A.M.C. carried out extensive researches in the laboratory and in the field.[1] While the war continued much of this work was naturally regarded as highly secret, and only now has it been possible to publish a comprehensive account of it. The increased efficacy of rickettsial vaccines, which, though they may not always prevent infection, undoubtedly decrease the severity of the disease, and the immense value of the newer insecticides in destroying lice are already well known. Less has been heard of the energetic efforts made to find chemotherapeutic remedies for rickettsial infections, which are scarcely affected by antibiotics or by the better-known sulphonamides.

A convenient method of testing the antirickettsial activity of large numbers of chemical compounds was to inoculate mice intranasally with dilute suspensions of typhus rickettsiae; such mice when killed seven days later show discrete greyish lesions on the surface of their lungs, and these lesions can be counted. Intranasal inoculation of mice is a highly dangerous proceeding to laboratory workers, unless special precautions are taken. Indeed, following infection of workers in other laboratories in this country, all five of those engaged in using this method at Hampstead contracted an infection, fortunately not with epidemic but with murine typhus. Those who have suffered from a murine infection, however, will agree that it is not entirely a pleasant experience; it does, however, give a solid immunity against louse-borne infection. A special inoculation box was designed at the National Institute for Medical Research (van den Ende[2]) for the safer handling of mice and other animals used for intranasal inoculation, and in the ensuing two and a half years after 1943 only one other laboratory infection occurred, though many fresh workers assisted in typhus studies. At the Army Emergency Vaccine Laboratory at Everleigh nine infections occurred before the introduction of a satisfactory inoculation box; none afterwards.

When the chemotherapeutic experiments were carried out on mice infected intranasally with rickettsiae the maximal dose for each drug was determined by intraperitoneal injection, and that dose was then administered in 0.5 ml. of saline daily for four days, the first intraperitoneal dose being given two hours before infection with typhus. In all, some 238 drugs were tested for activity against experimental typhus infection in mice. Results were completely negative till V 147 (*p*-sulphonamidobenzamidine hydrochloride) was reached; this compound strikingly reduced the numbers of lesions on the lungs of mice. It was found, however, that V 147 was very rapidly excreted, and better curative results were achieved by giving it twice daily. When this was done it became possible to suppress entirely the development of lesions in mice given a dose of rickettsiae producing some 150 foci in the lungs of untreated mice. In later tests, including a series of compounds related to V 147, the drugs were injected six times in all, once before infecting the mice, twice daily on each of the two following days, and once on the morning of the third following day.

Of twelve related compounds, V 186, *p*-sulphonamidobenzamidoxime hydrochloride, the amidoxime corresponding to V 147, was found to be equal to it in activity or perhaps a little better.



V 147 V 186

Any considerable modification in the molecule invariably destroyed chemotherapeutic activity (Andrewes, King, and Walker[3]). V 186 did not appear to have any antirickettsial activity *in vitro*, but in the mouse, inoculated intranasally, it showed activity in a dose of 2 mg. twice daily, or one-twelfth of the maximum tolerated dose of 24 mg. Subcutaneous injections of the drug gave much the same results as intraperitoneal injections; the compound could also be mixed in the food, when about the same dosage was effective as with parenteral injections, provided the compound was given in the food in two divided instalments. Most activity was observed when V 186 or V 147 were given before or soon after infection, but a definite action was still produced when treatment was delayed for 42 hours after infection. The two compounds were effective against both murine and epidemic strains of rickettsiae. In order to test the activity of these compounds in man a team left for North Africa and Naples, where typhus was epidemic. To assess correctly the chemotherapeutic activity of the two compounds a thorough clinical and pathological study of the disease was necessary in patients receiving only the usual supportive treatment. One section of the report therefore gives a full account, with illustrative cases, of epidemic typhus as it was seen during the war years in Algiers and Naples. This account of the clinical symptoms and pathological changes is of considerable value apart from the chemotherapeutic trials which rendered it necessary.

It was an intense disappointment when it became evident that neither compound had any specific action in modifying the course of the disease in man. The reason why

[1] Van den Ende, M., Stuart-Harris, C. H., Fulton, F., Niven, J. S. F., Andrewes, C. H., Begg, A. M., Elford, W. J., Gleeson White, M. H., Hawley, W. L., Mills, K. C., Hamilton, F., and Thomas, C. C., "Chemotherapeutic and Other Studies of Typhus." Med. Res. Cncl. Sp. Rep. Ser. No. 255, London, H.M. Stationery Office, 1946.

[2] *J. Hyg.*, Camb., 1943, **43**, 189.

[3] *Brit. J. Pharmacol.*, 1946, **1**, 15.

compounds should be active in one species and inactive in another is of considerable theoretical interest but is so far unexplained. A most striking example is optochin, ethylhydrocupreine, which is quite active in treating pneumococcal infections in mice but is useless in pneumonia in man. It is noticeable that in mice neither V 147 nor V 186 was inhibited by *p*-aminobenzoic acid, nor, when tested by the intranasal method, was it possible to show that *p*-aminobenzoic acid had any activity against rickettsiae. It was, however, possible to confirm the observations of Snyder, Maier, and Anderson[4] that *p*-aminobenzoic acid has some action when given by mouth to typhus-infected mice. This compound has now been shown to have an inhibitory effect on many species of rickettsiae, while in man it is of value in many varieties of rickettsial infection.

The last three sections of the report deal with the elaboration of a quantitative test for neutralizing antibodies against typhus rickettsiae, a comparison of typhus vaccines in the laboratory, and a study of the antigenic structure of murine and epidemic typhus rickettsiae. The quantitative test for rickettsial antibodies makes use of the number of foci produced in the mouse lung when mice are inoculated intranasally with rickettsial suspensions mixed with progressive dilutions of anti-serum. Qualitatively the intranasal test gives similar results to the intradermal rabbit test devised by Giroud[5] in 1938, but quantitatively the mouse test is the more satisfactory. For assessing the potency of typhus vaccines it was concluded that the most satisfactory test is the capacity of the vaccine to protect mice against the toxicity of rickettsiae injected intravenously. Studies on the antigenic structure of murine and epidemic typhus rickettsiae show that both murine and epidemic strains have surface antigens, some of which are similar. Unfortunately no fresh light is thrown on the question, so important for an accurate knowledge of the epidemiology of typhus, whether murine typhus rickettsiae can ever so mutate that their antigens become identical with those of epidemic strains. The OX 19 antibody of rabbit rickettsial antisera, however, is shown to be quite distinct from the antibodies produced by the undegraded surface antigens of the rickettsiae: it is apparently a fraction of the group of antibodies which reacts with rickettsiae degraded by boiling.

NUTRITION AND WOUNDS

The term "wound phthisis" has been aptly used to describe the wasting which accompanies sepsis. Cuthbertson[6 7] has drawn attention to the nature and the magnitude of the nutritional problem in these cases and particularly in the patient with extensive burns. In a recent paper Dunphy, Hoerr, Dimmler, and White[8] have described the post-operative regime at the Fifth General Hospital of the United States Army for battle casualties of the Normandy campaign who had abdominal wounds of a character which rendered evacuation to the United Kingdom impossible. Their patients were selected for transfer to a special unit because of their poor general condition, and they represent the more complicated cases of a total of about 150. All of the 16 cases treated had multiple injuries and had varying degrees of anaemia and hypoproteinaemia when they were received. Retroperitoneal, peritoneal, or wound infection was a major complication in 12 cases and was the cause of the two deaths in the group, one from rapidly progressing peritonitis and the other from extensive retroperitoneal abscesses. Intestinal obstruction developed in 11 cases and required a second operation in two of them. There were 7 cases of jaundice.

It must be recognized that the perfect parenteral food substitute has not yet been found. The main difficulty is to secure an adequate calorie intake which will prevent amino-acids which are necessary for tissue building from being deflected to meet energy requirements. In general Dunphy and his colleagues employed 500 ml. physiological saline to replace salt loss, with 2,500 ml. 5% glucose in distilled water to replace the loss of water and to supply some 500 calories. Variable volumes of 5% glucose in saline (200 calories per litre) replaced the salt and fluid loss from gastric suction, ileostomy, fistula, etc., and 1,000 ml. of plasma or whole blood (all whole blood if the haemoglobin was below 80%) provided some 50 g. protein (200 calories). Liver extract and some vitamins were also given. This regime was not ideal but was dictated by the available supplies. (This type of case is one which should respond well to a safe and nutritionally adequate preparation of glucose and amino-acids provided it could be administered in not too large a volume, though the report by Madden, Woods, Shull, and Whipple[9] that partial hydrolysates of protein are more efficient nutritionally than completely hydrolysed proteins or amino-acids makes further investigation necessary.) The fluids described were additional to the whole blood or plasma given pre-operatively to treat blood and fluid loss. Owing to the impracticability of repeating intravenous injections of concentrated solutions of glucose, it was necessary to rely on small supplemental oral feeds, usually in the form of sweetened milk, which were often begun before all evidence of peritonitis or intraperitoneal infection had subsided. These American workers agree that whenever possible matched blood or type-specific plasma should be transfused. Although Type O whole blood and plasma were used, there was some evidence that a haemolytic anaemia might be produced if high-titre blood was employed. Their regime appears effectively to have restored the levels of haemoglobin and serum protein in the patients in an average of seven to ten days.

The excessive catabolism of body protein which normally follows moderate or severe injuries may lead to a severe degree of malnutrition, particularly if there is infection. Residual abscesses must therefore be promptly drained. This recent experience emphasizes that external fistulae add a serious burden to the patient with abdominal wounds and that open ileostomies should be avoided where possible. On the other hand associated infection is even more deleterious to the patient's condition, for when the infection is controlled the fistula generally heals.

[4] *Report to the Division of Medical Sciences, National Research Council*, Dec. 26, 1942.
[5] *Bull. Soc. Path. exot.*, 1938, **31**, 245.
[6] *Brit. med. Bull.*, 1944, **2**, 207.
[7] Ibid., 1945, **3**, 96.
[8] *New Engl. J. Med.*, 1946, **234**, 545.
[9] *J. exp. Med.*, 1946, **79**, 607.

MARROW BIOPSY IN DIAGNOSIS

It is recorded that Schilling once rebuked a questioner who had asked about changes in the bone-marrow with the words, "Sir, I am a peripheral haematologist." The day of the peripheral haematologist has closed, and bone-marrow examination is now as commonplace as blood counts were twenty-five years ago; but the search for a completely satisfactory technique continues. Sternal puncture with examination of films made from the aspirated material and stained by one of the Romanowsky methods is the routine, but its shortcomings have always been obvious. It does not give any exact indication of the bone-marrow's cellularity; it shows no changes in the marrow's architecture; and the aspirated fluid consists of bone-marrow and blood mixed in proportions varying roughly with the volume withdrawn. For these reasons Seyfarth's method of sternal trephining has always had its adherents. It is, however, a far more ambitious procedure than sternal puncture, entailing considerable discomfort to the patient and all the panoply of a surgical operation.

A method is required which will provide material for fixed sections of bone-marrow as well as for films which allow study of cytological detail, while subjecting the patient to no more inconvenience than sternal puncture. Many haematologists have been accustomed, after making films, to allow the residue of the aspirated material to clot. This clot is fixed and embedded; in sections cut from it fragments of intact bone-marrow tissue can be seen. Amprino and Penati (1935) were the pioneers of this method, modifications of which were used by Rohr (1937) and many others. Such sections are not always satisfactory, and the fragments of marrow may be scanty. Cappell, Hutchison, and Smith describe a technique in this number of the *Journal* which has the advantages of concentrating the fragments of bone-marrow obtained by sternal aspiration, while removing the admixed blood. It merits a careful trial by all interested in marrow biopsy. A possible disadvantage is the need for aspirating 0.5–1.0 ml. of fluid: such a volume results in films of low cellularity which may be tedious to examine. Nevertheless their method is clearly superior to those in common use, and perhaps at last the answer to the haematologist's prayer for a means of combining the advantages of sternal trephining with those of sternal puncture.

SURGICAL EXPLORATION OF THE ORBIT

Space-occupying lesions of the orbit usually present an awkward surgical problem, partly because of difficulties in diagnosis and partly because a decision on the best surgical approach is not always easy. It is true that a pre-operative diagnosis of the nature of a tumour is often possible; but it frequently happens that despite the fullest exploitation of clinical and laboratory methods, including a search for signs of systemic disease (as in the case of neurofibromatosis described by H. B. Stallard in this issue of the *Journal*), stereoscopic radiography (by demonstrating the tumour itself in shadow or revealing thickening, rarefactions, or dilatations of the orbital wall), piezometry to determine its consistency, and rhinological, nasopharyngeal, and neurological examination, the diagnosis can be only tentative and must wait for surgical exploration. The surgical approach chosen should depend on the location—or the probable location—of the tumour. Apart from radiographic findings and the easy case where the tumour is anteriorly situated and is itself palpable, the direction of the proptosis, the degree of immobility, and the visual disturbances may provide valuable clues. As a general rule tumours at the apex of the orbit or within the muscle-cone produce an axial proptosis with retention of ocular movements and early ophthalmoscopic and visual disturbances; tumours outside this or associated with the orbital walls or encroaching upon them from outside are associated with eccentric proptosis, restricted mobility particularly in one direction, and retention of vision. As a general rule, also, early immobility of the eye is suggestive of malignancy, while marked proptosis with retained mobility is more characteristic of benign growths.

In the literature of the last fifteen years there has arisen a considerable controversy as to the best surgical approach for lesions of this type, and claims have been made for the universal applicability of one or other technique. This has arisen since advances in cranial surgery have rendered the transfrontal approach through the cranial cavity with removal of the orbital roof a relatively safe procedure; it has been popularized particularly in America in the expert hands of such surgeons as Naffziger and Dandy. Nothing, however, could be more unwise than to press the claim of universality for any single technique in a problem of this type. Five are available, and for all five there is a place. Lateral osteoplastic orbitotomy (Krönlein's operation), whereby the lateral bony wall is temporarily removed, is an excellent operation provided the tumour is entirely intraorbital and is laterally situated; it is frequently unnecessary if the tumour is small, but is probably most advisable when its size and location are unknown. The transfrontal route probably provides the freest access to the apex of the orbit, and is certainly the method of choice whenever an intracranial extension is suspected or feared (as in the common meningiomata). On the other hand, subperiosteal tumours or those invading the orbit from the paranasal sinuses are usually best dealt with by entering the subperiosteal space through an incision parallel to the superior orbital margin and displacing the orbital contents (anterior external orbitotomy). Through the same incision, by displacement of the globe and orbital contents and incision of the periosteum, the majority of tumours of the soft tissues of the upper and inner parts of the orbit outside the muscle cone can be removed after digital exploration. An anterior transconjunctival route either nasally or temporally, wherein the conjunctiva is incised at the fornices to the vertical meridian above and below, a canthotomy made, the appropriate horizontal rectus temporarily detached, and the globe strongly rotated, provides access back as far as the optic nerve. Finally, when the nasal sinuses are also involved the most effective approach may be made through them. In the choice each case should be considered individually and that route chosen which is most appropriate to the lesion in question and best adapted to the technique of the surgeon.

TREATMENT OF DELINQUENCY

Fifty years ago Samuel Butler's suggestion that society would eventually consign its criminals to hospital and its sick to prison was considered outrageously paradoxical, and at the beginning of Queen Victoria's reign more than 200 offences were punishable by death. About thirty-five years ago Norwood East started psychotherapeutic interviews with adolescent and adult men charged with attempting suicide and other offences. To-day the scientific investigation and treatment of the causes of delinquency are still in the pioneering stage, though the attention devoted to it both conforms with the present trend of social legislation and follows the far older tradition of humanitarianism. There are various causes of the comparative neglect that this branch of study suffers from. As Dr. Edward Glover points out on page 421 of this issue, the layman often adopts an "attitude of moral reprobation" towards the criminal, and the depth of feeling behind it is sometimes

revealed in discussions and letters to the Press on such topics as capital and corporal punishment. Man jealously guards his social relationships and reacts with instinctive violence to attempts at their disruption, just as ants will seize and kill an intruder from a neighbouring colony. The attitude of society as a whole to a problem cannot be dissociated from its investigation, particularly in the early stages, if only for the reason that pioneers must often rely on voluntary financial support.

The Institute for the Scientific Treatment of Delinquency was founded after publication of the M.R.C. report[1] in 1932 on the psychology of delinquency. Grace Pailthorpe then expressed the basic problem in these words: "The so-called criminal is not a person who suddenly crystallizes out as a criminal. His asocial behaviour is traceable back to his childhood days." The criminal's attitude towards society is regarded as a development of his childhood attitude towards his family. The surprising feature of Dr. Glover's experience at the Institute is that the results, in skilled hands, of treating psychopathic delinquents are more successful than those obtained with neurotic delinquents; and "even the 'old lag' is more amenable to psychological handling than the schizoid character."

It is to be hoped that the support from the general public asked for in a letter to *The Times* (March 12) from the Archbishop of Canterbury, Lord Horder, Sir Cyril Burt, Dr. Glover, and Mr. John Watson will be forthcoming. The work carried out at the Institute and elsewhere has established the value of psychotherapy for delinquents. In 1939 Norwood East and Hubert[2] wrote: "Psychotherapy as an adjunct to an ordinary prison sentence appears to be effective in preventing, or in reducing the chance of, future antisocial behaviour provided . . . the cases are carefully selected." It should no longer be necessary to have to appeal for funds to carry on work of proved worth —work, moreover, that should diminish the country's expenditure on criminals.

REACTION TO OILS AND FATS

The parenteral introduction of oily or fatty material of animal or mineral origin always provokes a typical and severe reaction. Pathologists are most familiar with this when sebaceous or dermoid cysts rupture, and in fat necrosis; there is an intense giant-cell reaction around crystals, or macrophages which appear foamy in paraffin sections. Such a reaction, however, is often a sequence to suppuration; instead of a complete resolution lipoid substances appear to be concentrated and cause a similar reaction. This is particularly the case in the lung. In the neighbourhood of new growths and of bronchiectatic cavities a condition once wrongly described as "unresolved pneumonia" is commonly found; the alveoli are packed with foam cells, as a rule without foreign-body giant-cell reaction.

Oils and fats are often deliberately introduced for therapeutic purposes, by no means always with harmful results. Penicillin and other drugs are to-day administered in wax and vegetable oils, and for radiographic purposes iodized poppy-seed oil is introduced into the bronchus, apparently without any ill result, although the oil remains for many months in the bronchi. On the other hand, mineral oils injected subcutaneously cause severe reactions, as many beauty seekers know to their cost. Lanoline injected into the peritoneum produces a foreign-body-reaction tumour within a few days. And there is no doubt that the inhalation of mineral oils may induce severe and sometimes fatal reactions in the lung—a condition usually described as lipoid pneumonia. Many oily medicaments for treating sinusitis are on the market, and their use is probably wide. They are bland, as the rather eighteenth-century terminology has it, and cause no cough reflex. The majority of recorded cases of lipoid pneumonia have been, however, in patients who were very young, very old, comatose, or with paralysis of the muscles of deglutition. Paterson discovered 8 cases in 813 necropsies at University College Hospital, London, a surprisingly large number in view of the small total number in the literature. R. E. Rewell contributes in this number a further case, which is in many ways unusual. The patient was a previously heathy young woman, and there was no history of administration of oily substances in any form. There are undoubtedly cells containing macrophages in the alveoli, and these contain fat. The nodules in the spleen and liver are also most exceptional in lipoid pneumonia. As the author says, however, the case is a pretty problem in differential diagnosis. Some pathologists might prefer to look upon the condition as granulomatous and the lipoid-containing cells as representing the non-specific reaction, commonly seen in the lung, to which we have referred.

Though vegetable oils are inert in the human organism, it is well to remember than animal fats even of homologous origin cause foreign-body reaction. Mineral oils, being emulsified, are exceedingly dangerous in the wrong place and especially in the lung.

A CONTRIBUTION TO THE DAIN FUND

Insurance practitioners throughout the country will after April 1 receive something over £3,500,000 as a final settlement for the year 1946. In stating this fact in the *Supplement* of March 15 Drs. H. M. Golding and W. Woolley proposed that a small share of this "windfall" should be devoted to charitable purposes. They recorded a resolution unanimously passed by the Bristol Local Medical and Panel Committee, the gist of which was that all insurance practitioners should give to the Dain Fund 1% of the lump sum they will receive in settlement of the final increase of 3s. for the year 1946. This proposal was backed up in the *Supplement* of March 22 by Dr. Janet Aitken as Chairman of the Charities Committee of the B.M.A. Dr. Aitken pointed out that the resources of the Dain Fund are now strained and that the trustees have recently been unable to give help where help was needed. Even though times are hard and expenses heavy it is hoped that insurance practitioners will express in this desirable manner their gratitude to the Insurance Acts Committee for securing this increase in the capitation fee.

The Dain Fund, it may be recalled, was inaugurated in 1936 in honour of Dr. H. Guy Dain for his outstanding services to the profession. The Fund was completed in 1939, when it amounted to over £4,500, but owing to the war it was not presented until the Panel Conference Dinner in November of last year. Dr. Dain had already intimated that he wished the fund to be devoted to the education of doctors' sons and daughters in need of financial help. The trustees reported last October that 8 out of 18 applicants had been assisted with substantial grants, but lack of resources had compelled them to forgo help to others in only slightly less urgent need. Those who wish to follow the excellent example of Bristol should send their contributions to the Secretary of the Dain Fund at B.M.A. House, Tavistock Square, London, W.C.1.

We announce with regret the death on March 21 of Sir Joseph Barcroft, F.R.S., formerly professor of physiology at Cambridge University.

[1] Pailthorpe, Grace W., *Studies in the Psychology of Delinquency*, Medical Research Council. H.M.S.O., London. 1932.
[2] East, W. Norwood, and Hubert, W. H. de B., *The Psychological Treatment of Crime*. H.M.S.O., London. 1939.

THE INVESTIGATION AND TREATMENT OF DELINQUENCY

BY

EDWARD GLOVER, M.D.

Director of the Psychopathic Clinic; Chairman of the Scientific Committee of the Institute for the Scientific Treatment of Delinquency

Looking back over the development of clinical psychology during the past quarter of a century it is now perfectly clear that our understanding of ego-disorders has lagged woefully behind that of the neuroses and other varieties of "encapsulated" symptom-formation, using this term to convey that a given symptom does not infiltrate the normal layers of the patient's ego. Freud was often reproached for inferring the nature of normal function from a study of the abnormal; but we now know that the normal ego is infinitely more difficult to comprehend, and consequently to modify, than those abnormal formations which may, as it were, attach themselves to it.

But, granted that the ego and its disorders are more refractory to analysis than the disorders of instinct, it is still remarkable that the particular group of ego-disorders described as "delinquent" has been the last to stimulate the curiosity of the psychopathologist. Actually we know more about the mechanisms of the psychoses than we do of the causes of crime. No doubt this neglect is due in part to the same deep prejudices that are responsible for the attitude of moral reprobation with which most laymen greet criminal behaviour; for the view, in short, that "sinful" conduct must not be "condoned" by the discovery that it is frequently a sign of illness. Anyhow, it is significant that in psychiatric clinics the diagnosis and treatment of delinquency is still regarded as rather an esoteric interest. Even in child guidance clinics, where it is freely recognized that delinquent behaviour is a common sign of abnormal development, it is not yet fully appreciated that this group of ego-disorders deserves and requires the attention of specially trained investigators.

It was this latter consideration that led to the formation of the Institute for the Scientific Treatment of Delinquency, a title which may now appear cumbersome and tendentious but at the time described precisely a current need. Indeed there seems to be little question that as medical psychology expands it will inevitably create a number of "specialties," corresponding to the specialties of organic medicine. Each of these will be concerned with the investigation and treatment of conditions that are at present merely regarded as types of mental disorder.

Already the work of the Institute has indicated the focal point at which the energies of a future generation of trained workers must be directed. For although study of representative samples of case-material has established the incidence of different types of delinquency—e.g. neurotic, psychotic, psychopathic, mentally defective, organic, etc.—it is in the psychopathic group that most of the unresolved problems of delinquency lie. Naturally the term "psychopathy," like its congener "schizophrenia," is one of these omnibus labels that serve to conceal a regrettable lack of understanding. But, like schizophrenia, psychopathy represents a well-defined clinical group with recognizable subdivisions. The delinquent psychopath, for example, is frequently also a sexual pervert even if this abnormality has not been marked enough to lead to the commission of detectable sexual offences. Admittedly the constitution of delinquent groups is influenced by the penal codes sanctioned by the community. A large proportion of the cases seen at the Institute are charged with exhibitionism and homosexual offences. But even excluding such cases, the proportion of delinquents diagnosed as psychopathic is a high one. It is no exaggeration to say that the investigation of psychopathy will shed more light on the normal development of the ego and of that remarkable instrument the super-ego (unconscious conscience) than any other clinical entity with the possible exceptions of schizophrenia and manic-depression.

Equal importance attaches to the therapeutic experience gathered at the Institute. In some respects the results obtained run contrary to psychotherapeutic expectation. It had always been supposed that neurotic types of delinquency would respond readily; and, allowing for the fact that the patient commences his treatment in a state of "negative transference," this supposition has proved well founded. The contrary assumption—namely, that the psychopathic delinquent would be harder to treat—has not proved to be accurate. He certainly calls for more skilled handling, but, given this skill, the results are even more striking than in neurotic types. Even without any formal attempt at psychotherapy the effect of mobilizing the interest of a number of "supporting" figures (psychologist, psychiatrist, social worker, probation officer, teacher, employer, foster-parent, etc.) is quite remarkable. Allowing for the fact that neurotic types will also improve under such conditions, still the psychopath clearly demonstrates his amenability to "manipulation" of his psychic situation. Even the "old lag" is more amenable to psychological handling than the schizoid character.

It is clear that progress in the field of delinquency calls for research on every variety of delinquent or predelinquent conduct. And this is not within the scope of the ordinary psychiatric clinic. The case for special centres for the investigation and treatment of delinquency has been proved up to the hilt. Only when a number of centres or special departments are established throughout the country and linked up with an international organization can we hope to put the problem of anti-social conduct on a thoroughly scientific basis. Only in this way can we hope to secure full recognition of the authority of medical psychology by the judiciary.

Interestingly enough, the difficulties that beset the London Institute have not been clinical difficulties. For reasons already indicated projects for treating delinquents have little popular appeal; yet, like all pioneer efforts, they are bound to depend in the first instance on voluntary support. Even with the most rigid of State organizations, pioneer work on social problems is likely to come from extramural centres. Despite exiguous finances and consequent shortage of staff, the Institute survived the war: it is to be hoped that it will survive the austerities of peace.

LIVERPOOL MEDICAL SCHOOL

In 1847 the annual report of Liverpool Royal Infirmary recorded the completion of a medical school. So began the Royal Infirmary School of Medicine, the direct descendant of the present medical faculty of the University of Liverpool. Medical teaching had been going on in Liverpool some time before 1847. There is a record of lectures given in 1811, and it seems reasonable to suppose that at least a large number of the 634 candidates examined by the medical board of the Infirmary between 1789 and 1807 were trained in the city. Liverpool was involved in body-snatching before the Anatomy Act of 1832, and cadavers were sent from there to the medical schools in Edinburgh.

Students at the Liverpool Infirmary Medical School took the examinations of London University, and the University College, Liverpool, was created because in 1876 practical physics became compulsory for the London first M.B. examination. The need for an endowment for a chair in physics led to the formation of the University College, which in 1903 was incorporated as the University of Liverpool. In 1865 the number of students at the Liverpool medical school was 28. There are now 528 undergraduates and 304 postgraduate students. Liverpool, true to the traditions of Hugh Owen Thomas and Sir Robert Jones, has established a specialist postgraduate degree in orthopaedics; there are also courses for the D.P.H. and mastership in radiology.

Notable names connected with the Liverpool medical school include W. H. Duncan, the world's first medical officer of health, who was lecturer in medical jurisprudence at Liverpool, and Sir Charles Sherrington. Frank Thomas Paul, inventor of Paul's tube, was dean of the medical faculty for seven years. The present Dean is Prof. T. B. Davie, M.D., F.R.C.P.

A Gerontological Unit under Dr. N. Shock is to investigate kidney diseases in Baltimore City Hospital, U.S.A. A group of healthy subjects aged from 30 to 90 will undergo tests at intervals of 1 to 5 years.

Correspondence

A Gift to the R.M.B.F.

SIR,—I am anxious to acknowledge through your columns the receipt of a donation of £647 18s. 10d. from Messrs. Burroughs Wellcome and Co. (the Wellcome Foundation Ltd.). This gift has been made by the very kind and generous thought of their directors in transferring the payments for the 1946 issue of the Wellcome Medical Diary to this fund. On behalf of my committee I desire to express our warmest thanks to Messrs. Burroughs Wellcome and Co. and also to assure all who made payments for the diary that this gift of £647 18s. 10d. will be the means of bringing some extra measure of comfort and ease to many of our beneficiaries.—I am, etc.,

C. LUTHER BATTESON,
Hon. Treasurer.

London, S.W.15.

The "Costoclavicular Syndrome"

SIR,—The instructive article by Prof. E. D. Telford and Mr. S. Mottershead (March 15, p. 325) on the "costoclavicular syndrome" prompts me to mention a cause of paraesthesia in the arms and hands of middle-aged men to which I have not seen any reference. Two cases have come to my notice in the last few years. The paraesthesia is caused by wearing a shirt of thick material with the sleeves rolled up to the axilla. From the causation it will be apparent that the symptoms are worse in cold weather and out of doors—i.e., when a thick overcoat is worn in addition. The mechanism is similar to that of the fakir's trick of stuffing a handkerchief into his armpit and stopping his radial pulse at will by pressing his arm closely to his side.

An interesting point in my two cases is that neither man would wear his shirt sleeves unrolled. When seen a year or so later they were free from symptoms, but each informed me that he could not bear long shirt sleeves and had cut them off.—I am, etc.,

R. SLATER.

Preston, Lancs.

SIR,—Amidst a mass of inconclusive literature on pain in the arm the article by Prof. E. D. Telford and Mr. S. Mottershead (March 15, p. 325) stands as a beacon of clear thinking founded on careful experiment and is only equalled by the summary of the literature in your editorial. It would appear from these articles that the key to the condition lies in the spasm of the scalene muscles, and it has long been held by the osteopaths that this spasm is initiated reflexly from a subluxed cervical joint. The strain of the cervical joint is maintained by, and is secondary to, a subluxation in the upper dorsal area. This may result from single or multiple trauma with the neck in side-bending rotation, such as may follow from a blow, or lifting bulky articles off a shelf above the head.

Manipulation of the cervical area frequently relieves the symptoms, but it is essential to obtain good movement of the upper dorsal subluxation in order to produce a permanent result. While a compression of the median nerve at the wrist may be a factor in certain cases, it is felt that most of these lesions are central in origin.—I am, etc.,

W. HARGRAVE-WILSON.

London, N.W.1.

Spirillum (Abacterial) Pyuria

SIR,—I was very interested to note in the article on "Abacterial Pyuria" by Drs. W. E. Coutts and R. Vargas-Zalazar (Dec. 28, 1946, p. 982) that a spirillum had been found in the centrifuged urinary deposit of the five cases presented.

During the last month I have had the opportunity of seeing a further case of abacterial pyuria. A centrifuged sample of the urine was examined under dark-ground illumination and was seen to contain numerous spirillum-like bodies, 5–10 per field, among the pus cells, length 5 μ, all of a similar shape, containing one or two regular curves along their length. This spirillum was also observed by a medical colleague and our sergeant special treatment orderly. The patient had no obvious dental sepsis or infected teeth. There was no radiological evidence of a tuberculous focus in either lungs or renal tract. An intravenous pyelogram revealed no abnormality of the renal tract. Treatment was commenced with the following course of neoarsphenamine: on Feb. 7, 9, 11, 0.3 g. N.A.B., and on Feb. 19, 0.6 g. N.A.B. (total, 1.5 g.). There was an immediate diminution in the urinary frequency. After the second N.A.B. the urinary frequency was normal. On Feb. 17 the urine had almost cleared and on Feb. 19 the urine was perfectly clear.—I am, etc.,

A. B. FIELDSEND,
Major, R.A.M.C.

C.M.F.

Congenital Malaria

SIR,—With reference to the correspondence in the columns of the *British Medical Journal* during the early part of 1946 concerning congenital malaria, I should like to draw your attention to my article in the October–November, 1942, issue of the *East African Medical Journal*, **19**, 223 and 247, in which I gave figures of infants who were found to be suffering from malaria at birth. The blood was taken from the baby's finger on three consecutive days following its birth, and out of 700 patients examined 40 mothers were found to have malaria parasites in the placental blood, and 2 infants.

These figures are by no means so impressive as those quoted by Dr. R. McKay in the *East African Medical Journal* in 1933, **10**, 246, or in a communication published in 1936 entitled "An Account of an Investigation into Malaria at Dar-es-Salaam," p. 17.—I am, etc.,

P. G. PRESTON.

Nairobi, Kenya.

Haematological Heresy

SIR,—Unfortunately I have only recently been able to read Dr. R. R. Bomford's most stimulating article (Dec. 28, 1946, p. 996) and I wonder if I might be permitted to make a few inexpert comments. Should the haemosiderosis, the hyperbilirubinaemia and urobilinuria, and the histological evidence of active phagocytosis be regarded as conclusive proof of haemolysis? The latter, surely, can be found in the normal subject if it is looked for. The others could, I think, be adequately explained by the excess of formed, and perhaps partially formed, haemoglobin now having "nowhere to go" because of the maturation arrest at the haemoglobinizing stage in haematopoiesis. There is seldom an iron lack in pernicious anaemia, as in normal erythropoiesis iron is neither excreted nor deposited but enters the haemoglobin molecule. In an erythropoietic upset, however, the iron cannot be utilized and it becomes deposited and increases the iron store. Hence the haemosiderosis.

Hyperbilirubinaemia and urobilinuria go hand in hand and are constant findings in the haemolytic anaemias. Their presence alone, however, does not, I think, justify the haemolytic theory. Again, bearing in mind the fact that there is no deficiency of iron and that there is every stimulus for the formation of haemoglobin from the tissue anoxaemia consequent upon the low red cell count, it is not difficult to imagine non-utilized haemoglobin being (*a*) broken down to haematin and hence to bilirubin, or (*b*) itself having a maturation arrest in its synthesis, and possibly the porphyrin III being diverted into bilirubin or some such similar pathological metabolism occurring. This would still explain the raised excretion of porphyrin I in pernicious anaemia, as the stimulus for haemoglobin formation is still there and the synthesis, or para-synthesis, still occurs—perhaps even in excess. Nevertheless the porphyrins are being utilized, and therefore the faecal coproporphyrin I would be raised if the call for haemoglobin is increased.

Another aspect of the hyperbilirubinaemia is the question of liver damage. I think Rich excised somewhere in the region of 90% of a normal dog's liver before he managed to produce jaundice. Reversing this statement it would mean that the destruction of red cells would need to be nine times greater than normal at least before jaundice developed. The life of a red cell must vary tremendously, and Lichtwitz states that it should not be measured in time but in actions—"oxygen carries" as he calls them. It has been stated that an average figure is a "life" of 50 days. Normal destruction would then be roughly a 1/50 cell per day, or in total 100,000 per day. To bring about a jaundiced condition in a haemolytic anaemia, therefore, would require the destruction of 1,000,000 cells per day. I do not know exact figures, but suggest that the blood level is not lowered so acutely as this even in P.A. relapse. The characteristic lack of symptoms in P.A. suggests an insidious lowering. To produce the biochemistry of the jaundice in P.A. it seems that liver damage then might conceivably also play

a part. Also supporting this statement is the fact that the supposedly very sensitive bilirubin tolerance test, as a measure of liver damage, is diminished in pernicious anaemia.

In iron deficiency and in Addison's anaemia the red cell fragility is normal or more usually decreased, whereas in the haemolytic type of anaemias it is usually increased—this includes the toxic type of haemolysis, e.g., in lead poisoning.

There is one factor not mentioned by Dr. Bomford which seems to materially support his argument, and that is the presence of methaemalbuminaemia in pernicious anaemia. It is only formed, so far as is known, from extracorpuscular haemoglobin and serum albumin and is therefore supposed to indicate intravascular haemolysis. It is found in all the haemolytic anaemias except acholuric jaundice, its absence there being accounted for by the supposition that in this disease the "haemolysis" is performed by the reticulo-endothelial system and therefore extravascularly. It might also be pointed out that the methaemalbumin is excreted solely by the liver and that in liver damage it might be retained; but its very presence is pathological, I believe. There is one last simple but apparently significant fact that seems very much in favour of the faulty erythropoiesis theory, and that is the almost constant finding of leucopenia and thrombocytopenia in cases of pernicious anaemia in contrast to the opposite state found in the haemolytic anaemias.

Unfortunately, being somewhat isolated, I have no means of checking these statements nor of getting them criticized. A practical suggestion, should it not already have been performed, which might shed some light on the theory of unused haemoglobin being the source of the excess of bilirubin in the serum, etc., might be the determination of serum bilirubin levels and urobilinogen excretion in cases of Addison's anaemia with superimposed iron deficiency.—I am, etc.,

A. A. MUDIE,
Lieut., R.A.M.C.

M.E.L.F.

Principles Governing Nervous Activity

SIR,—Prof. E. D. Adrian describes (March 8, p. 305) how synaptic delay through multineurone arrangements and after-discharges accounts for "long-lasting central effects" by which "the results of an afferent message might be stored indefinitely to influence behaviour for many years to come." Such specialized continued activity over years is incompatible with normal sensory experiences, whose residua are known to lie dormant (as engrams) until a similar sensory circumstance again occurs. Residua of sensory patterns therefore are not an activity but a structural tissue change such as is afforded by neurobiotaxis and growth of capillaries. "The neural equivalent of what went on in the mind" may be a necessary adjunct for mental development and its expression, but must not (as I have shown, Feb. 8, 1938, p. 265) be considered as an actual part of mental phenomena because of absolute differences in the fundamental characteristics of neurone and mental function.

"That purposive acts must be moulded by afferent patterns" may be simply explained by assuming, with some degree of positive evidence, that the afferent stimuli cause local changes of lumen of cerebral capillaries, which open or close appropriate reflex pathways by influencing threshold values of adjacent neurone groups. Neuronal activity along these open pathways is known to leave a wake of acid and other metabolites, which can change the vascular pattern and so cause subsidence of the central disturbance. If the original pattern of afferent stimuli still remained, then the vascular pattern would of course tend to re-form.

The signalling of the achievement of purposive acts along afferent pathways as the cause of the subsidence of the central disturbance, which is the basis of Prof. Adrian's scheme for investigation, involves a decentralization of mental phenomena, and seems to me unnecessary, since an urge readily disappears, without change of pattern of the afferent stimuli, upon the advent of unrelated stronger stimuli.

F. A. PICKWORTH.

Birmingham.

Rubella and Pregnancy

SIR,—I refer to the letter from Dr. Robert Sanderson (Feb. 1, p. 199). It is easy for the objective observer to criticize the remedies proposed for ills which have not affected him personally; but the objective viewpoint tends, *per se*, to be truer representation.

Dr. Sanderson saw his grand-daughter afflicted with a deaf-mutism which probably was a consequence of rubella during the pregnancy of her mother. He advocates abortion of pregnancies during which rubella occurs, as, he understands, "is being done in Australia" (is it being done in Australia?). This suggestion of his must be based on emotion rather than on reason. The figures in your leading article of Nov. 23, 1946 (p. 778) indicate that a possible 10% of all rubella pregnancies result in congenitally abnormal children. Has Dr. Sanderson any suggestions to make as to how we may discriminate, so that the nine out of ten infants who would be born entire may escape the "massacre of the innocents"? Or does it seem feasible that such diagnosis will ever be attainable? However, granting the discovery of a method which will enable us to identify deaf-mutism or such in the unborn, we now come closer to the basic objection to direct abortion which Dr. Sanderson advocates. To quote his letter: "deaf-mutism is such a domestic catastrophe and permanent sorrow that I advocate inducing abortion . . ."

The root of the problem lies deeper. May I quote: "For those who believe, no explanation is necessary, for those who do not believe, none is possible." It is accepted, as the result of rational argument, by philosophers and theologians of many denominations that direct abortion is murder and is therefore never justifiable. There are many more "problems" in relation to the morality of abortion, some whose correct solutions are more difficult of acceptance, than that introduced by the association of rubella in pregnancy with congenital defects. It is for that reason that I ask you to publish this letter suggesting the correct approach, ethically, to these things; it is the morality of our behaviour which must take precedence over its expediency in such dilemmas, which are really only apparent and are not unsolved.—I am, etc.,

W. KEVIN BARRY.

P.O., Sesheke, N. Rhodesia.

Prevention of Infant Deaths

SIR,—In their interesting and well-informed comments on my paper on the above subject, Dr. I. Rose (Dec. 28, 1946, p. 1006) and Drs. I. M. Harkness and J. B. Cochrane (Jan. 18, p. 114) stressed the same point, namely, that the deaths of at least five infants cited might have been avoided by retaining them in hospital for a longer period. They are of course absolutely right in this, but it is also true to say, as I tried to indicate, that it was because of the inadequate care they received on discharge, due to the prevailing sociological conditions and at a time when they were unable to withstand such adverse conditions, that they did not survive. It is agreed that this was a consequence of their too early discharge, but this train of events would not necessarily apply where a premature baby goes to a good home with a capable and sensible mother. Drs. Harkness and Cochrane in the second paragraph of their letter describe better than I could have done the sociological dangers to which many babies are exposed on leaving hospital, and a wider realization of this is needed. Nevertheless, the viewpoint of the hospital doctor must be appreciated, for, quite apart from the shortage of beds and cots, the risk of cross-infection cannot be excluded, and, other things being equal, the sooner a baby is out of hospital the better. The dangers of a poor home environment will often outweigh the potential dangers of cross-infection, but this will not always be so; in any case the hospital doctor must be kept informed of the sociological background of his cases, for without this knowledge he cannot decide whether a baby should be retained in hospital beyond the normal period. It was there that our arrangements were found to be wanting, and it was to remedy this that our scheme was devised.

I am glad to have the support of Drs. Harkness and Cochrane for my claim for the provision of hostels where prematures and other debilitated babies can be "hardened off" before returning to unsatisfactory households; it is, however, probable that such hostels might have a greater part to play than that of mere postnatal sanctuaries, but this is too large a question to enter into here. I regret I cannot give Dr. Rose details of the discharge weight of the babies concerned, but unfortunately I have not here available the records to consult. As regards blood counts, it was the practice when these cases were under treatment to do a routine blood count on every expectant mother where there was a suspicion of clinical anaemia or debility, and the blood counts quoted referred to the antenatal

period. Iron and vitamin preparations were available and were given almost as a routine, and liver preparations could also be used if and when required.—I am, etc.,

West Bromwich, Staffs. J. TUDOR LEWIS.

Shortage of Nurses

SIR,—Gloucester is to be congratulated on having evolved a practical scheme for the employment of part-time nurses which will go a long way towards meeting the present hospital staff crisis. It is unfortunate that a number of authorities such as the Kent County Council have not yet launched a publicity campaign for the recruitment of these part-time workers and indeed are turning away from their hospitals both trained and untrained personnel who have volunteered for part-time work in response to the Government appeal.

It is also unfortunate that owing to an oversight an anomaly arose when the London County Council part-time scheme was first operated whereby nurses doing 30 hours in the week received more pay than those doing 40 hours. I understand that this anomaly will now be removed. Its removal will however accentuate the obvious disparity referred to by Miss Katharine F. Armstrong (March 15, p. 345) between the pay of the part-time and the full-time nurse. The argument in regard to nurses' emoluments cannot hold good indefinitely, since it is recognized by all those anxious to promote an adequate flow of suitable recruits to the profession that nurses should, wherever possible, live out, and in fact in many cases already do so.

The suggestion put forward by Dr. L. Ley for preliminary training (March 15, p. 355) is excellent, and it is of course essential to the success of any long-term scheme that nurses' training colleges should be integrated with the higher educational system of the country. It is, however, also essential that the rates of pay for student nurses should be drastically revised, not in the light of whether we can afford 6d. a week more but in the light of whether we will be able to run our hospitals without a steady inflow of keen intelligent girls into the nursing profession.—I am, etc.,

St. Mary Cray, Kent. BRIAN H. KIRMAN.

SIR,—Your correspondent Dr. Leonard Ley (March 15, p. 355) has outlined in his letter some useful and wise suggestions whereby the recruiting of nurses can be accelerated. Would it be forgiven if I ventured to say that on a most important matter he has, in common with many medical men, missed the point?

A woman who is in training, or who has trained, in the care of the sick is a "nurse" simply and solely and should be treated as such. In many hospitals nurses are messengers, and it is quite a part of their routine to leave off any nursing duty which happens to be on hand just to "run to such-and-such a ward," "fetch this," or "borrow that." It is not exaggeration to say that many a young nurse associates the advent of the doctor into the ward with being sent off to find forgotten *x*-ray films, notes, or to borrow, in a hurry, some instrument in which the ward is lacking. The natural pride and interest that a young beginner to nursing feels in her work is rather rudely shaken when she "downs tools" to become a harassed messenger girl.

Is it too much to hope that soon we may see wards equipped each with such articles as Ryle's tubes, ear syringes, steam kettles, etc.? In how many wards are such articles as kidney dishes, enamel bowls, and trays at a premium? Why is so much time spent in sending off for such articles to be borrowed? As for the messages which must be fetched and delivered in all wards, cannot official runners be employed or, failing that, the under-training-age recruits? Surely it should be a thing unheard of for any nurse, however junior, to leave the ward work for any pretext whatsoever—except, perhaps, the classical "fire or haemorrhage." In these matters doctors can help.—I am etc.,

London, E.17. CARMEN MORFEE.

SIR,—I wonder whether Dr. Ley (March 15, p. 355) is aware that the General Nursing Council divided the Preliminary State Examination in 1938 in order that the subjects of anatomy, physiology, and hygiene could be included in the general school curriculum so that intending candidates might cover these subjects before entry to hospital for training. Pre-nursing courses have already been established in 265 schools and technical colleges in England and Wales. The list can be obtained from the offices of the General Nursing Council. A girl completing a course can take Part I of the Preliminary Examination before entry to hospital. Last year over 12,000 candidates presented themselves for Part I of the Preliminary State Examination, but unfortunately only quite a small number entered by way of a pre-nursing course.

The recruitment of sufficient nurses is an educational problem which can be solved only when the education authorities of the country take the responsibility which is theirs and when every school and technical college in the country has a pre-nursing course. This measure would simplify recruitment; further, it would lead to revision of the nursing curriculum in order that the knowledge of the basic sciences already gained might be used to form the best foundation for nursing training.—I am, etc.,

London, N.W.11. EVELYN C. PEARCE.

Mengo Hospital Jubilee

SIR,—May I draw the attention of readers of the *Journal* to a rather unusual medical anniversary. In February, 1897, after an adventurous three months' journey on foot for 800 miles from the coast, there arrived at the capital of Uganda a party of missionaries, who included among their number the young Dr. A. R. Cook and his future wife, a nursing sister named Miss Catherine Timpson. Shortly before, another pioneer, Bishop Hannington, while on the same journey, was murdered as he crossed the Uganda frontier.

In May, 1897, the first hospital to be established anywhere in this part of Africa was built of reeds and mud, and from that date without cessation a stream of patients has passed through the wards of this hospital—the figures for last year, 1946, being 4,317. Out-patients numbered over 14,000, and nearly 900 operations were performed. There is to-day a nurses' and midwives' training school with 110 students, and each year some of these girls, qualified at a Government examination, pass out into numerous hospitals and maternity homes throughout East Africa, both Government and mission.

Space forbids mention of much of the fascinating history of this medical work, started by Sir Albert Cook, C.M.G., O.B.E., M.D., etc., and his brother, J. H. Cook, M.S., F.R.C.S., but it is worth recording that the first vaccinations against smallpox in East Africa were performed here and the first case of sleeping sickness in Uganda recognized in these wards, apart from many other pieces of original work in therapeutics, public health, and medical education. Fifty years in the life of a young African territory is a long time, and such a Jubilee should not pass unnoticed in medical circles. With this in view the Uganda Branch of the British Medical Association is organizing an East African inter-territorial meeting to celebrate the occasion during the first week in September. The work done in these years has been of the highest quality, as is exemplified by the orderly rows of bound case sheets in the hospital library, dating back to the first case seen *en route* even before arrival. It is interesting to mention that on another shelf are bound copies of the *British Medical Journal* going back to the very early days of the century.

A programme of rebuilding, urgently needed, is being undertaken to mark the occasion of the Jubilee at a cost of £30,000. If any readers should feel inclined to help with the carrying on of this valuable service for one of our African dependencies, donations would be gratefully acknowledged by the Secretary of the Jubilee Appeal, Box 161, Kampala, Uganda.—I am, etc.,

R. T. S. GOODCHILD,
Medical Superintendent.

Medical Certification

SIR,—I was interested to read (March 15, p. 353) of Dr. Leslie Ballon's struggles with the Board of Trade to procure a "thermos" flask for one of his patients. I am recording a case of my own, as I think you will find it rather amusing, though I am afraid I did not think it very amusing at the time—particularly as just then I was spending a large part of most days digging my car out of snow drifts.

Mrs. S. gave birth to a 5-lb. (2.2-kg.) child, and it was considered necessary to give the child three-hourly feeds. As

she was unable to breast-feed the child, it was put on an artificial food. She asked me if I could give her a certificate for a "thermos" flask so that she could keep water hot for the night feeds. Accordingly I wrote out a medical certificate.

1st certificate.—Please supply Mrs. S. with a "thermos" flask.

Reply.—Certificate inadequate. State for what reason flask required.

2nd certificate.—Please supply Mrs. S. with "thermos" flask; she is a nursing mother.

Reply.—Inadequate. State why nursing mother should require "thermos" flask.

3rd certificate.—Please supply Mrs. S. with "thermos" flask; she is a nursing mother and requires the flask to give the child night feeds.

Reply.—Please state that Mrs. S. has no other means of cooking.

4th certificate.—Please supply Mrs. S. with "thermos" flask; she is a nursing mother and requires the flask to give the child night feeds; she has no other means of cooking.

By now the whole affair had become fantastic, and I asked Mrs. S. if she really wanted me to go ahead with it. "Oh, no," she replied, "I have a friend who is an agricultural worker and he got a flask for me on a certificate from his boss."—I am, etc.,

Ruskington, Lincs. R. L. GIBSON.

Remuneration under the Act

SIR,—I have just read with great interest the letter of my namesake, Dr. R. J. Healey (March 15, p. 352). I could not disagree more strongly with the suggestion made. During the war I had considerable experience of A.F. 1667 from the Army side and have since had some from the civilian. The trouble to obtain payment is so great and the remuneration so small that for months now I have forsworn anything to do with the abomination.

To me it seems that payment by the numbers on a doctor's list is fair and reasonable, the doctor having simply to remember, when he gets a troublesome call, the numbers of those patients for whom during any year he is not called upon to do anything whatsoever. Such a condition is of course innate in any insurance system.—I am, etc.,

Longton, Staffs. C. W. HEALEY.

Basic Salary

SIR,—Out of all the confusion of thought surrounding the National Health Service Act the crucial point has been clearly indicated by Dr. D. Saklatvala in his admirable letter (March 8, p. 308)—viz., no basic salary. The basic salary is not in the patients' interests, and on that account alone should be resisted by all general practitioners. Let us all unite on this essential point, and everything else will fall into its proper place.

The General Practitioners Subcommittee will have failed completely if they do not show the Minister that a basic salary will not be tolerated. We must have an adequate capitation fee, remembering that this time it will not be subsidized by private practice. We must have access to the courts when necessary. There is no need for "direction"; that can easily be overcome by an added sum per capita for those working in depressed or unpopular areas. Our practices can still remain our own under the capitation system. Limitation of lists will find work for all the new-comers. For our patients' sake the family should be the unit until the individuals leave home.—I am, etc.,

Prestwich, Manchester. J. A. JAMIESON.

Calorie Value of Toasted Bread

SIR,—The statement that the calorie value of bread increases by 10% or 20% by toasting (*Journal*, Feb. 22) should go a long way towards solving the present world food shortage. It would, for example, only require the compulsory toasting of all bread in this country to effect a saving greater than that resulting from rationing it.

Perhaps, however, you did not mean to imply an absolute increase in calories by toasting but an apparent increase when expressed on the basis of dry weight of bread or toast. The drying of the bread during toasting naturally results in more calories per ounce (30 g.). But one normally does not eat one's bread in ounces but in slices, and a slice of bread before or after toasting has of course the same calorific value. One might equally well refer to the decrease in calorific value of milk when taken in tea; milk has a calorific value of about 20 per ounce, while milk in tea would have a calorific value of perhaps 3 per ounce. The calorific value of the milk has no more been reduced in this instance than that of bread is increased by toasting; the same number of calories are there but in a more or a less dispersed form.—I am, etc.,

London, W.8. JOHN YUDKIN.

Dirty Milk Bottles

SIR,—During a recent visit to a large wholesale dairy in London by a number of doctors studying for the Diploma in Public Health, attention was drawn to the difficulty arising out of failure of the consumer to rinse out milk bottles after use. The one-third-of-a-pint bottles from schools comprise the dirtiest specimens. They are not only unrinsed but many contain broken straws and aluminium caps, while some are not completely emptied and contain curdled milk. Not only are these bottles hard to clean but in warm weather flies gain entry and breed on the sour milk.

It is surprising that milk bottles returned empty from schools should be received in this very dirty condition, especially as the organizing bodies are public authorities. It would appear, moreover, that a very valuable opportunity of instilling practical habits and knowledge of hygiene in children is missed. It should not be a matter of great difficulty or expense to organize a system by which children cleaned their own milk bottles and received some instruction on the reasons for so doing.—I am, etc.,

Iver, Bucks. J. H. WILDMAN.

"Trade Secrets"

SIR,—Would it be of interest and benefit to open a discussion on "trade secrets" in your columns? I write in respect of surgery, though the subject applies also to the art of physical diagnosis in general as well as to technique in operations. It is fundamental that the ideal method of learning to operate is by serving an adequate apprenticeship. Thereafter skill and wisdom are the fruits of experience.

Most trade secrets are still passed by word of mouth, both in the east and the west. How many of us consciously know that the secret of entering a subcutaneous vein depends upon three factors—viz., getting everything "teed up" in a most unhurried fashion; experimenting until a proper oblique light falls upon the skin, which has been rendered semi-transparent with methyl alcohol; and "catheterizing" the vein by inserting the needle exactly in the vein's axis while the left thumb of the operator makes traction on the vein distal to the site of the needle's entry? Is it realized that footwork is as essential to the tying of a surgeon's knot as it is to the skilled boxer? Watch an adept making his passes during either game.

I was invited to watch Mr. Hamilton Stewart, of Bradford, using his transurethral tools. He works standing. His operating table is elevated almost to eye level. Since then I have done knee-cartilage and piles operations while standing at my work. The hands work better when footwork is permitted. Where in orthopaedic literature are we advised to apply a full-length compression dressing before releasing the tourniquet at a knee operation?—I am, etc.,

Calgary, Canada. J. A. M. CAMERON.

The latest annual report on medical services in Nigeria (population, 174,000) states that the general health of Europeans is, on the whole, good. Malaria is the commonest condition necessitating admission to hospital and accounts for about one-quarter of all in-patients. Diseases of the skin, enteritis, and diseases of the digestive system are, after malaria, most frequently encountered. Among the Africans most hospital admissions are for diseases of the skin, cellular tissues, and organs of locomotion. Pulmonary tuberculosis is still the commonest cause of invalidism among African officials and in 1945 was responsible for 18.9% of all invalidity. Venereal diseases account for a larger amount of hospitalization than malaria; in 1945 the number of in-patients with malaria was 8,569, but those with venereal disease numbered 11,372. In the south country there is a falling off in the number of cases of gonorrhoea treated, possibly due to the increasing activity of private practitioners and to self-medication with sulphonamides. In the north venereal disease remains as serious a problem as before. In 1945 Nigeria had for the first time on record an epidemic of louse-borne typhus (126 cases, with a mortality rate of 25%). Prompt measures and the use of D.D.T. controlled the epidemic.

Obituary

S. MORTON MACKENZIE, M.B., B.Ch.

His old colleagues in the Council of the British Medical Association and in the Surrey Branch will learn with regret of the death on March 13 of Dr. Morton Mackenzie, of Dorking. For many years Dr. Mackenzie was a very active figure in both the central and local affairs of the Association. He was a member of the Representative Body for fifteen years, a member of the Council for thirteen, and for the long period of eleven years (1922 to 1932) he presided over the Organization Committee. Here he found a sphere of activity in which he took particular delight. Nothing pleased him more than to report the constantly increasing membership of the Association, to encourage local honorary secretaries, and to spur the Divisions and Branches on to new activities. He was himself the embodiment of cheerfulness and energy. He served also for ten years on the Journal Committee and for five years on the Parliamentary Elections Committee. Anything which had to do with propaganda on behalf of the Association, with the recruitment of young practitioners to its ranks, and with the enhancement of its reputation had his vigorous and enterprising support.

To the regret of all who had the opportunity of learning the value of his work—work of a kind which has not a wide appeal—Mackenzie withdrew from active participation in central affairs at about the time of the Association Centenary, though he was then not much more than fifty years of age.

Stephen Morton Mackenzie, son of Sir Stephen Mackenzie, physician to the London Hospital and nephew of Sir Morell Mackenzie, the laryngologist, took his university course at Cambridge, and went to the London Hospital for his clinical training, qualifying M.R.C.S., L.R.C.P. in 1904, and M.B., B.Ch. in the following year. He settled down to a partnership practice in Dorking and became surgeon to the Dorking and District Hospital. He was also chairman of the Surrey Voluntary Hospitals Consultative Committee, and for fourteen years a member of the Surrey Panel Committee. He had been president of the Surrey Branch of the B.M.A. and remained vice-president. He was on the council of Epsom College and treasurer of the Surrey Medical Benevolent Society. In the war of 1914–18 he served as a temporary captain R.A.M.C. No practitioner was better known in his area, and he was greatly esteemed by colleagues and patients alike.

FERGUS L. HENDERSON, M.B.

The death on Feb. 28 at the age of 54 of Dr. Fergus Leslie Henderson has ended a life expended to the full in professional and public work in Glasgow.

A son of the manse, Dr. Henderson was educated at Glasgow Academy and, after a distinguished scholastic career, at Glasgow University, where he graduated in 1914. After a short period in general praetice and in the city hospitals, his interest in radiology was stimulated by the late Dr. James Riddell, one of Glasgow's pioneers in the use of *x* rays. In the early days the interpretation of *x*-ray films was still largely an unexplored field, but in conjunction with Sir Alexander MacGregor and the late Dr. John Wilson, Dr. Henderson correlated the appearances which he saw in the film with the findings of the clinician and helped to establish the place of the radiograph in the elucidation of the many diagnostic problems of chest work.

When the Corporation of Glasgow opened up its first radiological diagnostic station at Ruchill, Dr. Henderson was the natural choice as consultant, and as the tuberculosis service expanded he became the final arbiter on practically all the chest radiography carried out by the public health department. In 1923, when the McAlpin Home introduced radiological equipment, he became consultant there. By many he will always be remembered for the efficiency of his work with the public health department, but his association with the McAlpin Home brought him into intimate contact with a wider circle of medical colleagues, who, as the years passed, came to value his opinion more and more. Some years ago his service to the McAlpin Home was recognized by his appointment to the board of management, and here his wisdom and administrative ability found another outlet. Among his other appointments was that of radiological consultant in the West of Scotland to the Ministry of Pensions. For many years he was also in charge of radiotherapy in the Cancer Hospital.

Two other interests were important in his life. A man of sincere religious beliefs, he formed an association with Ruchill Church in 1914 when he became an officer in the 69th Company of the Boys' Brigade. Two years later he took charge of the company, and during the last thirty years he had built it up to become one of the largest and most effective in Glasgow. A pioneer in his realization of the need for proper recreational opportunities among working-class boys, he set in train schemes which culminated in the purchase of an athletic ground at Maryhill which might have been the envy of any wealthy public school. Here the boys enjoyed first-class playing facilities and learned the qualities of real sportsmanship under the guidance of a man to whom "playing the game" in every aspect of living was as natural as breathing.

His other enthusiasm was music. A life-long supporter of the Scottish Orchestra, he had been a valued member of the committee of management for many years. Before 1939 his interest in music was fused with his Boys' Brigade activities and the annual production of a Gilbert and Sullivan opera was one of the features of his company's activities.

His private circle of close friends was small, for his natural modesty and shyness formed a mantle which kept him somewhat aloof. But a wide circle respected him as a man of real integrity whose sense of responsibility was great and whose opinion was always fearless and forthright. He was one of the world's "givers," and his passing is felt the more keenly because there are so few to fill his place. In his work at Ruchill it would have been easy for him to seek the limelight which such a unique piece of public service deserved, but that was not his way. His enduring record is there, however, in the playing-fields of the Ruchill Church and in the imprint he has left on the minds and in the lives of a multitude of the young citizens of Glasgow. Dr. Henderson was unmarried. He is survived by his mother, two brothers, and a sister.

WILLIAM DUIGAN, M.B.

Oxford lost one of its oldest and most respected practitioners when William Duigan died on Feb. 24. Dr. Duigan was born in 1865, the son of Dr. J. Duigan, of Gainsborough, Lincolnshire, and was educated at Loretto, Christ's College, Cambridge, and the London Hospital. An M.A. at Cambridge in 1886 was followed by the M.B., Ch.B. in 1890, and shortly afterwards he began his career as a general practitioner at Woodstock. In the 1914-18 war he was a captain R.A.M.C.(T) attached to the 3rd Southern General Hospital at Oxford, where he became more and more interested in the administration of anaesthetics. After the war he was appointed honorary anaesthetist to the Radcliffe Infirmary, later becoming its director of anaesthetics and chief anaesthetist. There he built up a reputation as a safe and helpful assistant, and his services as an anaesthetist were in constant demand by the surgeons of his day both in hospital and in private practice. Later, with the institution of the Nuffield professorship, Dr. Duigan's active connexion with the department gradually ceased. Till then, successive generations of medical students had reason to remember with gratitude his painstaking and skilled tuition.

Dr. Duigan suffered from fibrositis, and as he grew older this became a crippling ailment, while in 1929 and 1931 he had to undergo two operations for chronic glaucoma, which left his sight impaired. Nevertheless, for several years afterwards he continued in active work as a general practitioner with a substantial list of lifelong patients who had no thought of going elsewhere. As the age of 80 approached, however, he had reluctantly to give up work altogether. Dr. Duigan was a great traveller and he delighted in touring with his car and family through this or that country abroad. Other relaxations he found in fencing, fishing, and gardening, and especially in the culture of roses.

Dr. Duigan gave many years of devoted service to the British Medical Association and to the local medical profession. He was hon. sec. of the Oxford Medical Society from 1897 to 1906. A member of the B.M.A. since 1891, he was hon. sec. of the Oxford Division and of the Reading, Oxford, and Maidenhead Branch 1902 to 1913; local secretary for the

Annual Meeting at Oxford in 1904; representative at the Annual Representative Meetings 1905-7; and president of the Oxford and Reading Branch in 1922-3. He was also a member of the Oxford Medical Literary Club for forty-five years; and the University of Oxford honoured him with the grant of its M.A., while University College, Oxford, made him a member of its Fellows' Common Room. Dr. Duigan married in 1902 Jane, the youngest daughter of the late General Sir Horace Anderson, K.C.B. She died in 1930. They had one daughter, who survives her father and to whom, as his constant and devoted companion in later years, the local medical profession has extended its sympathy and gratitude.

Dr. G. A. Auden, formerly professor of public health in the University of Birmingham, writes: In the obituary notice of Dr. T. W. SHORE in the *Journal* of March 8 (p. 315) mention is made of the open scholarship in science at St. Bartholomew's Hospital won by him in 1880. The late Sir Arthur Shipley, F.R.S., tutor, and later master, of Christ's College, Cambridge, and Vice-Chancellor of the University, sometimes used to say with a twinkle in his eye that he owed all his success at Cambridge to the fact that he had been beaten in that scholarship by "Tommy" Shore; otherwise he would have been a hard-worked country practitioner. For, after his defeat at Bart's, he obtained an open science scholarship at Christ's College, where he spent the rest of his days with such manifest enjoyment of life and where he gained the affection of everyone who was privileged to know him. Truly: Heaven from all creatures hides the book of fate.

Dr. W. Norwood East writes: May I add a few words to your sympathetic reference (March 15, p. 357) to the premature death of Dr. W. H. DE B. HUBERT? Those of us who were associated with him at Wormword Scrubs Prison in the years before the war will particularly remember him for his conspicuous ability, charming personality, loyalty, and wide vision, as well as for the remarkable ease with which he gained the confidence and co-operation of a difficult group of patients. From the commencement of his work at the prison it was clear that his practical approach to mental analysis and his diagnostic acumen would prevent him from committing the mistakes which are liable to occur at first when dealing with law-breakers. His ready response, clear penetration, good humour, and constructive criticism, together with a readiness for his own work to be criticized, made him an easy collaborator. We are entitled to believe that had it not been for the exigencies of war Hubert would have made further contributions to the psychiatric approach to crime and criminals.

Dr. GEORGE WISHART MCINTOSH died suddenly at his home in Kirkcaldy on Feb. 27. He studied medicine at Edinburgh University, where he graduated M.B., C.M. in 1896. In 1902 he took the B.Sc. (Public Health), and after a visit to America and some preliminary assistantships he began general practice in Kirkcaldy. This continued until 1910 when he was appointed medical officer of health for Kirkcaldy and Dysart. He occupied this post for twenty-seven years, and during his tenure of office was responsible for the modernization of all the health services. His previous experience of general practice gave him a broad outlook on medical problems, and local practitioners found in him a sympathetic and understanding colleague. They showed their appreciation by entertaining him to a dinner and making a formal presentation on the occasion of his retirement in 1937. During the recent war he emerged from his retirement and did valuable service by assisting the Fife medical officer of health in organizing the A.R.P. services for the county. Dr. McIntosh had been a member of the British Medical Association since 1898, and in 1932–3 was president of the Fifeshire Branch. For many years he was a member of the Branch Council, where his shrewd common sense was always helpful. He was a member of the Caledonian Medical Society and a Fellow of the Society of Medical Officers of Health. Dr. McIntosh was for many years a keen Territorial and served in the 7th Black Watch (R.H.R.). During the first world war he commanded a company in this famous regiment, which he took to France. After some active service abroad he was invalided home and was there transferred to the R.A.M.C. with the rank of major. After the war he was awarded the T.D. Apart from his profession he had many other interests. He was a staunch member of the Baptist Church and an original member of the Rotary Club. In fact he had just returned home from the club's weekly luncheon when his sudden death occurred. He was also a justice of the peace for Fife. Always fond of sport, he played golf in his earlier days and was a keen curler. Latterly he had devoted himself to bowling, and at the time of his death was president of the Victoria Bowling Club. Dr. McIntosh had a fine personality. His uprightness of character, his kindliness and generosity, and above all his geniality and great gift of humour made him a general favourite.

WALTER GRAHAME STEWART died on March 6 after being in poor health for some months. He was born in Port Elizabeth, South Africa, in 1874, and educated at Dulwich College and Guy's Hospital, qualifying in 1899 and taking the London M.B. in the same year. After being house-physician at Guy's and clinical assistant at the Royal London Ophthalmic Hospital and at the Throat Hospital, Golden Square, he settled in Ware, Hertfordshire, in 1901. He took over a busy general practice, being district medical officer and public vaccinator, and medical officer to the Post Office and to the Herts Training School, Chapmore End. He was honorary medical officer to the Hertford County Hospital from 1906 till 1916, and medical superintendent of the East Herts Joint Hospital for 33 years until his retirement in 1945. He was later elected a member of the board, an office he held until his death. During the 1914–18 war Dr. Stewart was commandant of the Ware V.A.D. Hospital, of which his wife was lady superintendent and matron; he was appointed M.B.E. in 1920 for his war services. Later he served on the Hertford Pensions Board. Divisional surgeon to the Ware Division of the St. John Ambulance Brigade since 1929, he undertook the training and organization of the town first-aid service during the recent war, and was medical officer to the first-aid post. Among his writings was an article in the *Journal* on enteric fever. Dr. Stewart took an active part in the public affairs of Ware. A keen churchman, he was for many years a churchwarden at Ware Parish Church. He was elected to the urban district council in 1923, and was chairman from 1928–30 and from 1939–44. He remained a member of the council up to the time of his death. He was a member of the British Medical Association for thirty-two years, chairman of the East Herts Division in 1930 and again in 1935, and president of the Hertfordshire Branch from 1936–8. He married in 1902 Rebecca Charlotte, daughter of the late Major-General F. F. Daniell; his wife died in 1933, and he leaves one son, Lieut.-Col. Gordon W. F. Stewart, R.A., and two daughters.

Dr. GEORGE MONTGOMERY DRURY, of Cheadle Heath, Cheshire, died at the age of 79 on Feb. 21. A student of the Royal College of Surgeons, Edinburgh, and Queen's College, Cork, he qualified in 1893, and had been in general practice all his life. Dr. Drury had one of the oldest practices in Cheadle Heath and had been well known there for over fifty years. He had long been associated with St. Augustine's Church, Cheadle Heath, and he had been a member of the British Medical Association since 1898.

Dr. WILLIAM GLOAG GALLETLY, of Anerley, died at the age of 84 on Feb. 23. He qualified M.B., C.M. at Edinburgh in 1884, and was in practice in Sunderland for a few years. He then moved to Northwold, Norfolk, and continued in general practice there from 1893 until 1915, when he joined the R.A.M.C. In 1918 he was appointed to the staff of the Ministry of Pensions, and he continued his work on medical boards until failing eyesight necessitated his retirement in 1928. Dr. Galletly was a man of studious disposition and a quiet and lovable character.

Dr. JOHN ALEXANDER NEILAN died at the age of 70 on March 16 at Scarborough. He was in practice at Seaham for forty-eight years. Dr. Neilan, who qualified in Dublin, went from Ireland to Seaham in 1899 as a partner of the late Dr. L. G. Dillon. Latterly he was in partnership with his brother, Dr. Charles James Neilan, and Dr. H. J. Weir. He left Seaham last December and went into retirement at Cloughton, near Scarborough. For some years he was medical officer of health to Seaham Urban Council. During the war he was medical officer to Seaham Home Guard, holding the rank of major.

FREDERICK CHARLES PRIDHAM died at his home in Darlington on March 11. He had been ailing for some time, but with the unquenchable courage and thought for others that characterized his whole mode of life he did his job as a doctor almost to the last. He was a student of St. Thomas's Hospital, and a worthy son of that great foundation, of which he later became casualty house-surgeon. Later he was house-surgeon to Chesterfield Infirmary, and eventually settled in Darlington in general practice in 1913, the year in which he took the F.R.C.S.Ed. During the 1914–8 war he joined the R.A.M.C. and, serving as a captain, was gassed while overseas. He was

an honorary senior surgeon of the Darlington Memorial Hospital for many years. He had been a member of the British Medical Association since 1910, and was chairman of the Darlington Division in 1927–8. He devoted his leisure hours to the medico-political side of his profession, and was a tower of strength to the B.M.A. in all its activities. He was much beloved by his own patients and by others whom he had helped back to health in the hospital. In the minds of his colleagues he will always remain a model of what each of them would wish to be.

Dr. JOSEPH ELLISON died on March 14 at Alwoodley, Leeds, aged 82. He was in practice in the Beeston district of Leeds for nearly fifty years, and retired about ten years ago. A native of Leeds, Dr. Ellison was a student at the Leeds School of Medicine at the same time as the late Lord Moynihan.

Medico-Legal

RESPONSIBILITY FOR DRUGS SUPPLIED

A recent decision of the High Court[1] opens up a serious new legal threat to medical practitioners, though it concerns a firm of veterinary surgeons. In the summer of 1945 a drug-retailing firm recommended to the veterinary surgeons a new preparation know as "corynebacterium toxoid" for use against summer mastitis in dairy cattle. The managing director assured them that it was perfectly harmless. They inoculated with it two dairy herds, and sixty cows suffered from serious illness. The dairy farmers sued the veterinary surgeons, who joined as co-defendants the suppliers of the toxoid, who in their turn joined the manufacturers.

The judge, Mr. Justice Hallett, said that if the veterinary surgeons had recommended the toxoid, supplied it, charged the farmers for it, and left the farmers to administer it, they would undoubtedly have been liable. If they had rendered a bill charging for the toxoid as one item and for their services as another, they would also have been liable. He could not see how their liability was lessened by the mere fact that they themselves injected the toxoid. He therefore concluded that there was an implied condition in the contract between the two parties that the substance to be used for the inoculation should be reasonably fit for the purpose of inoculating the cattle against summer mastitis. The condition had not been fulfilled, and the farmers could recover damages against the veterinary surgeons; the veterinary surgeons could recover from the suppliers, and the suppliers again from the manufacturers. He assessed the damages at £3,341 18s. 6d., with costs.

This decision makes new law of a very disturbing kind. If it remains unchallenged, a doctor may be called upon to pay heavy damages if any drug, injection, or appliance which he uses should cause harm through not being reasonably fit for the purpose for which it is intended. A writer in the *Law Journal*[2] suggests a cumbersome form of disclaimer of warranty which might afford partial protection, but is a general practitioner to produce this every time he dispenses a bottle of medicine? To shoulder the consequences of our own mistakes is bad enough; to be responsible for those of drug manufacturers would be crushing. In view of the possibility of an appeal, further comment must be withheld.

1 *Dodd* v. *Wilson* (1946) 2 All E.R. 691.
2 1946, **96**, 681.

The World Federation of Scientific Workers has appointed Mr. J. G. Crowther Secretary-General Designate (London Office, 15, Half Moon Street, W.1). The President of the Federation is Prof. F. Joliot-Curie, the High Commissioner for Atomic Energy in France. The Federation was founded last year at a conference convened by the British Association of Scientific Workers and attended by associations of scientists from five continents. The World Federation serves as a centre through which the various national associations render each other mutual advice and encouragement. It helps the growth of the individual associations in their own countries, and assists them to work out common aims and methods of organization. It is preparing a charter of the rights and duties of scientists to serve as a guide model to scientists in all countries.

Medical Notes in Parliament

SCOTTISH HEALTH SERVICE BILL

The remaining Clauses of the National Health Service (Scotland) Bill were approved by the Standing Committee on Scottish Bills on March 18.

Transfer and Compensation

On Clause 65 Mr. J. S. C. REID moved to extend the payment of compensation to persons who immediately before the appointed day had devoted a substantial amount of their time to employment with voluntary hospitals, local authorities, insurance committees, or such other bodies as might be prescribed. He said that under the Act as it stood there was provision for transfer or compensation of whole-time officers but he could find none with regard to part-time officers. He held that if a man had been doing this work he should be taken over, as he hoped the Minister would say that such men, if they desired it, would be given whole-time employment under the new scheme. A number, however, were unable to accept offers of that kind. Why should they not be compensated?

Mr. THORNTON-KEMSLEY said the Clause was another example of English legislation being copied blindly without cognizance of the special conditions in Scotland.

Mr. BUCHANAN regretted that he could not accept the amendment. It was then rejected by 17 to 12. On the motion that the Clause stand part of the Bill, Mr. REID asked whether it included employees of a contributory scheme who were not employed directly by hospitals.

Sir THOMAS MOORE asked whether when full-time servants were transferred to the executive councils they would enjoy superannuation rates based on their past services, or would come under an entirely new system.

Mr. BUCHANAN replied that no man would be the worse off as the result of being taken over. His rights under the original scheme would be safeguarded. Those who were employed full-time by hospitals as collectors were also amply safeguarded. Full-time collectors employed in Scotland by associations for collecting for hospitals numbered only seven, and the Department had practically made arrangements for giving them full-time employment. He understood that in England a number of collecting associations were going to continue and would be given certain other matters to attend to, but they were not likely to continue in Scotland. Clauses 65 and 66 were then ordered to stand part of the Bill.

Mr. BUCHANAN said Clause 67 gave the Secretary of State power to hold inquiries so that he would not be forced to make a decision without this procedure. This Clause was also ordered to stand part of the Bill, as was Clause 68. Clause 70 was ordered to stand part on an assurance by Mr. Buchanan that there would be no novelties of procedure in the making of regulations under the Bill. Clause 71 as amended was approved, and so were Clauses 72 to 76. Clause 77 was accepted after Mr. Buchanan had said that the word "asylum" had got into a wrong setting and the people engaged in this work would like a different word. This did not mean that the law was different. He promised to insert during the Report Stage words which would make clear that the Ministry only intended in this Clause to cover the Act of 1857.

"Remunerative Time"

On Clause 78 Mr. REID withdrew an amendment which proposed to declare that "remunerative time" included any time during which a person would normally be occupied in remunerative work. He said a doctor would lose "remunerative time" from his practice or consulting-room while attending boards set up under the Bill. Doctors ought to be compensated for loss of time.

Mr. BUCHANAN replied that the Lindsay Committee had inquired into the whole question of lost time in public work and its report was being printed. The Government must have this report in front of it before any action could be taken. If the Government decided to take action on this report the Scottish office intended to operate it in the widest possible terms so as to provide for the loss of remuneration of all people concerned. The amendment was withdrawn.

Dr. MORGAN inquired about the meaning of the word "hospital" and the phrase "persons requiring medical rehabilitation." He wished to make sure that the definition included a rehabilitation centre where there was no question of medical or surgical treatment but a man was prepared for restoration to his former work.

Mr. BUCHANAN said the point was important. In Scotland a great experiment was carried on at Gleneagles, where people were not so much medically treated as equipped for some useful service to themselves and to the community. The Government intended to take over that work as a part of medical treatment in the widest sense. Clause 79 was then ordered to stand part of the Bill.

Scottish Health Services Council

Discussion followed on the First Schedule. Mr. MCKIE said the Bill gave the Secretary of State wide powers on how the Scottish Health Services Council and the Advisory Committees were to be selected. Mr. WATSON thought the medical profession was over-represented on the proposed bodies and that there should be better representation of local authorities. Sir THOMAS MOORE said doctors, dentists, and midwives were more qualified to exercise responsibility than anybody else. One of the weaknesses of local authorities was that the medical profession had been largely ignored by them.

Resuming the debate on March 19, Sir THOMAS MOORE said he agreed with Mr. Westwood in regard to professional practitioners who were to be members of the Scottish Health Services Council but his advisers had been lax in regard to other healers who were unorthodox. He referred to homoeopaths and osteopaths. The osteopath was supported in many cases by the orthodox practitioner, but at present neither homoeopaths nor osteopaths were represented on the Council.

Mr. BUCHANAN said that in most things the Government had accepted certain standards. The Secretary of State had an open mind and did not think these people wrong because they were in competition with older ideas. Mr. Westwood had no feelings on the possibility of the homoeopathic doctor being grafted into this system. It would be better if this development came by its own growth rather than by the Secretary of State forcing it. Concerning the general composition of the bodies with which the Schedule dealt, there had been a feeling that doctors were over-represented as against local authorities. The Government took the view that in no case should the medical profession have a preponderance of the representation.

Mr. CARMICHAEL said the composition of the Council disturbed many members. There were 18 medical practitioners on a Council of 35. Laymen were completely overwhelmed by the members who would represent the professions. Social health services had in the main been the result not of the work of the medical profession but of ordinary men and women taking a broad view of health. Nobody could argue that the medical profession pioneered the supply of milk and meals to schools. He asked Mr. Westwood to see whether it was possible to have one member of the Council elected from the local authorities.

Need for Co-operation

Mr. WESTWOOD said it was impossible to allow every interest to be represented. If some bodies were left out their interests would be taken into consideration. He could not agree to elect representatives direct from the public health authorities in Scotland, which numbered about 55. After consultation with the medical authorities he had increased from four to five the number of representatives with local government experience. The medical representation of 18 was to be drawn from all sides of the profession, from specialists as well as from medical practitioners. In addition the Government might have to draw upon medical officers of health. So far as he could see there could be no possible combination among the 18 medical representatives to give advice which would be detrimental to the Service. He would have consultations again with the medical profession. He could not make a success of the Service unless he had the whole-hearted co-operation of that profession, but before the Report Stage he would see if it were possible to increase the numbers of those who would represent local authorities. The question of representation for the homoeopathic school of medicine would not be overlooked. He had not had consultations with the homoeopaths but had received representations. Homoeopathy was recognized but osteopathy was not. He was entitled, therefore, to take homoeopaths into consultation and consideration.

Mr. GALLACHER said it was far more important that the people whose health was at stake should be represented. Doctors and others associated with the medical profession could still give their services but it was not necessary that they should be on the Council. Mr. SCOLLAN was astonished that in the negotiations the medical profession had asked for a preponderance of 18 out of 35.

Mr. WESTWOOD said there were no negotiations in the ordinary sense. There were discussions, but the final decision was with the Standing Committee and the House.

Mr. MCKINLAY asked whether the allopaths would keep the homoeopaths from being taken into consultation. If it was within the power of the allopaths to keep the homoeopathic physicians outside, they would. Ten years ago Glasgow Corporation passed a resolution that homoeopaths were to get all facilities in Glasgow hospitals. It was left to the medical officer to make the necessary arrangements, but there had never been a homoeopathic practitioner in the hospitals to dispense even the smallest pellet. In the medical office of a local authority he had found that the doctors had no ideas outside their own profession. He asked that there should be on the Council representatives of the medical profession with local government experience.

Technical Advice

Dr. STEPHEN TAYLOR said that in the English Bill the medical profession had done rather better. It had got 21 members instead of 18. Medical committees in Scotland had done valuable work in the past. The purpose of the Council was to give technical advice. It would set up subcommittees for such subjects as maternity and child welfare, skin diseases, and special hospitals, but it certainly would not be running hospitals. If the Government wished to get good medical advice it needed experts to give it. Medicine now had so many branches that to get a sufficiency of experts a large medical representation was needed. He reminded the Committee that not all the medical profession was in favour of the Service which was being set up. Many doctors had doubts about it and felt that they were having to make big sacrifices. They had indicated that at any rate their advice should be heeded in the running of the Service. To regard the medical profession as incorrigible was the doctrine of despair. He hoped that after the Bill had been in operation for a few years the profession would bless the day when it had been passed.

Mr. J. S. C. REID said that if the services to be set up under the Bill were regarded primarily as services to cure the patient the doctors were not over-represented on the Council. If, as many Labour members appeared to think, the Bill was designed primarily to set up a bureaucracy the form of which was more important than the curing of patients, then the views of Government supporters were correct and the medical elements should be smaller.

Mr. WESTWOOD said that running all through the Bill and through the Schedule there was provision for those with experience of local government. It might be that the medical profession would not object to an increase in the number of such persons to six or seven. The First Schedule was then approved by 22 to 11 and the Second Schedule, on hospital endowments, was approved with consequential amendments. The Third Schedule was also accepted.

Chairmen of Boards

On the Fourth Schedule Mr. REID moved an amendment designed to leave to hospital boards the selection of their own chairmen.

Mr. WESTWOOD said he had not the slightest desire that these regional boards should be run on rubber-stamp lines. They could be run on different lines in different regions, but the Secretary of State must see that the person appointed as chairman was a proper person with the highest qualifications. Mr. Reid's amendment was defeated by 22 to 12.

Mr. WILLIAM ROSS moved to provide that at least one-half of the members of each regional hospital board should be persons other than medical practitioners. He said that in the Schedule as it stood there was a grave danger that the regional boards and later the boards of management would be overloaded with medical practitioners. If the medical profession provided the largest number of representatives there was always the danger that the medical profession would be told that they were running these hospitals for the benefit of the doctors and not for the benefit of the patients. The Committee agreed to the amendment.

Mr. WESTWOOD accepted an amendment moved by Mr. Reid authorizing boards of management to elect their own chairmen. On the motion that the Schedule as amended stand part of the Bill Mr. CARMICHAEL asked about local government representation on regional hospital boards. He argued that this element should be in the majority.

Sir BASIL NEVEN-SPENCE asked why the Royal College of Surgeons and the Royal College of Physicians, and also the colleges in Glasgow, were not to have a say in the appointment of these committees.

Mr. BUCHANAN said the Government would consult the local authorities to the fullest possible degree. It intended to give the colleges representation under Part II (c). The Government had not the vaguest idea what the size of the Board would be

except that it must be of manageable size. The Fourth Schedule was then agreed to. The Fifth Schedule was also accepted after discussion.

Continuing on March 20 the examination of the Sixth Schedule, Mr. NIALL MACPHERSON said nothing would be more disastrous than for this great system to start on the assumption that the medical profession was antagonistic to the Secretary of State. It would be far better for the medical profession to appoint the medical, dental, and pharmaceutical representatives on the executive council, and for the local authorities to appoint their representatives, the Secretary of State appointing none at all.

Mr. BUCHANAN replied to the plea of Sir Thomas Moore for the homoeopathic doctor. This type of doctor was fully qualified and was like any other specialist, but the Government had not picked members of the medical profession because they were specialists. It must be for the doctors themselves to choose what people they proposed to have. There were good reasons for the appointment of four members by the Secretary of State. The proposed body was as near as the Government could get to what used to be called the "Borough Committee."

Mr. MCKINLAY asked what was the local medical committee which had the right to appoint seven members. Was it the medical committee of the British Medical Association?

Mr. BUCHANAN said no, it was the medical committee recognized under the Bill. The Standing Committee then agreed to the Sixth Schedule.

Scottish Medical Practices Committee

On the Seventh Schedule Cmdr. CLARK HUTCHISON moved to leave out paragraph 5 of the Schedule, which provides that proceedings of the committee shall not be invalidated by any vacancy in its membership or by any defect in the appointment for qualification of any member. He said his friends felt there ought to be no doubt of the qualifications and suitability of the members.

Mr. BUCHANAN said that without this paragraph it would be impossible if one of the members died to carry on the work until another man was appointed. Without the latter part of the paragraph there would be the same difficulty if, after a member had been appointed, it was found that in some way he might not be a proper person to be a member. If he had taken part in the work of the committee everybody who had received a certificate from the committee would have to be re-certified.

The amendment was withdrawn and, on the question that the Schedule stand part, Cmdr. HUTCHISON pointed out that nothing in it laid down what should be a quorum of the Medical Practices Committee to adjudicate upon cases at any one time. If some members of the committee had to travel long distances and were busy men they might be tempted not to attend, and important decisions might be made by two or three instead of by the full committee. The committee had considerable powers to influence the careers of young doctors.

Mr. BUCHANAN said the Government proposed to allow each of these committees to fix its own quorum. If a rigid quorum were laid down for a country district, hardship might be inflicted on a doctor because it might be a long time before the business was settled. Although there was a committee for the whole country, this committee might have to go to many districts. He did not wish it to call doctors from Inverness and such places. Instead, it might meet in Inverness. To get four or five people to go to Inverness might be difficult, and the committee should be trusted to fix its own quorum, regulations, and standing orders.

Mr. MACPHERSON said people whose cases came before the committee would far rather have a full hearing with the quorum.

Mr. BUCHANAN said he would look into the matter again, but in his own mind he was against it. The Medical Practices Committee was being trusted with great powers, yet it appeared the only thing its critics could not trust it with was its own quorum. If any applicant felt that he was not getting full representation he could apply for an adjournment. The Standing Committee then agreed to the Seventh Schedule.

On the Eighth Schedule Mr. BUCHANAN moved an amendment to make the Lord President of the Court of Session the authority who should appoint the chairman of the tribunal. The Committee agreed to the amendment and to the Schedule.

Lunatics and Mental Defectives

On the Ninth Schedule Mr. BUCHANAN said that in view of the passing of this Bill the lunacy laws must be brought up to date within the next two or three years, apart from any alterations made under this Schedule. In the Schedule the Government proposed two or three changes. One was that mental hospitals and institutions for mental defectives were in future to be provided by the Secretary of State instead of by the local bodies. The Government was also ending the detention of lunatics in poorhouses. Private patients and the Poor Law lunatics or the Poor Law mental defectives were to have the same treatment. The whole matter was codified under the new National Health Service arrangement. All this made the Schedule long and complicated. Sir Basil Neven-Spence deserved credit for the work which he had done on the reform of the lunacy laws in Scotland. The Government hoped to introduce a Bill dealing with this subject at an early date. Private asylums would be taken over provided they were not carried on for profit. The Committee agreed to the Ninth Schedule.

Cmdr. HUTCHISON moved to leave out of the Tenth Schedule the paragraph dealing with expenses which put a limit of five guineas a day for the services of any officer engaged on an inquiry. This paragraph also provides that expenses incurred by the Secretary of State shall be paid by the parties.

Mr. BUCHANAN could not accept this amendment. Further pressed, he indicated that he would reconsider the matter. The amendment was withdrawn, as was another by Cmdr. Hutchison to substitute ten guineas for five guineas. Mr. BUCHANAN said that if it was necessary to appoint a person at a higher fee the Secretary of State had the power. An amendment enjoining publication of a full report of the inquiry was also negatived. Mr. BUCHANAN said that a decision on publication had always rested with the Secretary of State and it was essential to the working of the scheme that this should continue. The Tenth Schedule was approved.

On the Eleventh Schedule Mr. BUCHANAN moved an amendment authorizing the giving of convalescent treatment to a person recovering from infectious disease. This amendment was accepted, the Schedule as amended was approved, and consideration of the Bill was concluded.

The Bill was ordered to be reported as amended to the House.

PENICILLIN BILL

LORD AMMON in the House of Lords on March 18 formally moved the Second Reading of the Penicillin Bill.

LORD LISTOWEL, for the Government, said its purpose was to control the sale and supply to the public of penicillin or any substance with similar properties. The Bill would prevent such drugs and preparations reaching the public unless supplied or sold by a doctor, a dentist, or a veterinary surgeon, or by a chemist acting on a prescription drawn up by such a person. The production of penicillin had steadily increased and there was now enough for all medical purposes at home, leaving some for export. There was no longer any justification for continuing to enforce Orders under the Defence Regulations which had been authorized by Parliament to conserve a limited supply of this drug. Before deciding whether penicillin should be sold freely and without restriction or should be subject to some new statutory control the Government consulted Sir Alexander Fleming, Prof. R. V. Christie, Col. L. W. Harrison, and Sir Philip Panton. Their unanimous opinion was that unrestricted access to penicillin would do grave injury to the public health. The most serious danger would arise when a patient took too small a quantity. This caused germs to lose their sensitivity to penicillin. People who acquired this immunity to penicillin would not only harm themselves but would be a danger to their families. The temptation to self-treatment or to amateur treatment in venereal disease to avoid publicity would be almost irresistible if penicillin could be obtained at any retail shop or store. The results would be injurious to health. This again would add to the grave difficulty of preventing the spread of diseases. The indiscriminate use of penicillin might also lead to dermatitis and ulcers of the mouth. In no other way than by legislation could the use of penicillin be effectively controlled. There would be no interference with the wholesale trade in these drugs and preparations, nor with the supply to doctors and surgeons, to hospitals and nursing homes, to bodies doing medical research, or to Government Departments. Clause 1 of the Bill set out the restrictions on the sale and supply of penicillin and other substances. It also provided exemption from restrictions where these drugs could change hands without prejudice to health. Subsection 3 of this Clause provided that the same prescription should not be used more than once, nor after three months, unless the person signing it directed otherwise. Clause 2 applied the Bill to penicillin and to such other substances prescribed in regulations made by the appropriate Minister after consultation with the Medical Research Council.

Lozenges and Snuff

LORD STRABOLGI said he had been in touch with Sir Alexander Fleming with regard to the terms of the Bill. Where penicillin

lozenges were prescribed, perhaps 100 at a time, and were used for some chronic complaint, the mouth and throat would become an ideal breeding ground for the resistant strain of streptococcus. Not more than two dozen tablets should be dispensed to any person without further authority from the practitioner. He asked whether the Bill could be amended to cover this point.

LORD AMULREE welcomed the Bill but said that certain firms making cosmetics sought to increase the sale of these goods by calling attention to the fact that they contained penicillin. The preparations contained such a minute quantity as to be completely valueless. This was calculated to bring penicillin into disrepute. He was not clear whether the remarks of Lord Strabolgi about penicillin lozenges would also apply to penicillin snuff. This was good for the after-effects of colds and catarrh, and he understood it was safe. It tended to lose its properties quickly. It seemed hard to make a patient go back to his doctor for a prescription for penicillin snuff each time he caught a cold when it could be made possible for him to get a repeat supply on the original prescription.

LORD LISTOWEL said the responsibility for not prescribing too large a quantity of penicillin at one time fell upon the medical profession rather than on the Government. Penicillin was the first of a series of new substances on which experiments were being made. The most advanced of the other preparations was streptomycin, on which the Medical Research Council was conducting tests. Too little was known about its properties for it to be specifically mentioned in the Bill.

The Bill was read a second time and referred to a Committee of the whole House.

University Grants

In reply to Sir Ernest Graham-Little on March 10, Mr. DALTON announced receipt of a report from the University Grants Committee on the needs of the universities for the five years 1947-52. He proposed to resume the pre-war practice of settling Exchequer grants to the universities for periods of five years. They would need Exchequer grants on a rising scale for some time to effect improvements which were due even before the war and to increase the number of students. He proposed that Parliament should be asked to provide recurrent grants rising from £9,000,000 for the academic year 1947–8 to £9,970,000 for 1948–9 and thence by annual increments of £650,000 to £11,920,000 for 1951–2. The recurrent grants for the present academic year would amount to between £6,000,000 and £7,000,000. These figures excluded the grants of £500,000 now made to teaching hospitals, which would continue during the financial year 1947–8 and the amount of which for future years had not yet been determined. The University Grants Committee estimated that the universities' programmes of development would necessitate during the quinquennium non-recurrent grants amounting to £50,000,000, of which £40,000,000 would be for new buildings and £10,000,000 for acquiring sites, existing buildings, and new equipment. He accepted this estimate of the need and would do his best to meet it. Even after allowing for a high degree of priority, the best forecast at present possible did not justify the expectation that universities would be able to undertake more than £20,000,000 worth of new building during the quinquennium. Such a restriction of the building programme must retard to some extent the expansion which the universities had in view. He proposed to review the position from year to year. The sum which Parliament would be asked to vote for the financial year 1947–8 was £11,875,000. This figure included the grants to the teaching hospitals, provision for agricultural education after the present academic year, and £3,500,000 for the capital grants.

Vacuum Flasks.—The supply position for vacuum flasks is still tight and the permit scheme for one-pint "thermos" flasks cannot yet be dropped. This scheme, according to Sir Stafford Cripps, takes full account of the needs of agricultural and other rural workers as well as of those cases in which there are no other facilities for giving babies a hot drink.

Streptomycin.—The present production of streptomycin in Britain is very small but the Minister of Supply hopes that by June it will be about 250 grammes per month. The Medical Research Council has organized clinical trials at selected hospitals in certain types of cases of tuberculosis.

Berlin.—During the period from November, 1945, to February, 1947, inclusive, 6,879 women in greater Berlin were compulsorily examined and 654 were found to be suffering from venereal disease.

The Services

Major-General W. Foot, M.C., late R.A.M.C., has been appointed Honorary Physician to the King in succession to Col. (Hon. Brig.) J. S. K. Boyd, O.B.E., late R.A.M.C., retired.

Col. J. Biggam, M.C., late R.A.M.C., has been appointed Honorary Surgeon to the King in succession to Major-Gen. R. E. Barnsley, C.B., M.C., R.A.M.C.(ret.).

Major (Hon. Lieut.-Col.) H. Stevenson, R.A.M.C., has been awarded the Efficiency Medal (Territorial).

The President of the U.S.A. has conferred the following decorations in recognition of distinguished services in the cause of the Allies:

Legion of Merit, Degree of Commander.—Major-Gen. (Temp.) Sir Henry Letheby Tidy, K.B.E., late R.A.M.C.

Legion of Merit, Degree of Officer.—Col. D. G. Cheyne, C.B.E., M.C., late R.A.M.C.; Brig. J. A. MacFarlane, O.B.E., E.D., R.C.A.M.C.

Bronze Star Medal.—Col. (Temp.) H. H. Kenshole, D.S.O., T.D., Majors (Temp.) W. G. H. Allen and A. D. Robertson, R.A.M.C.

Medal of Freedom with Bronze Palm.—Major (Temp.) G. A. G. Peterkin, M.B.E., R.A.M.C.

The King of Norway has conferred the King Haakon VII Freedom Medal upon Acting Air Cdre. R. R. Macintosh, R.A.F.V.R., in recognition of valuable services rendered in connexion with the war.

The Queen of the Netherlands has conferred the following decorations in recognition of distinguished services in the cause of the Allies:

Bronze Lion.—Capt. J. W. Logan, D.S.O., R.A.M.C.

Bronze Cross.—Major (Temp.) C. J. Longland, Capts. T. D. V. Swinscow and D. Wright, M.C., R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Died on Active Service in India on March 6 from injuries received in an accident.—Capt. James Campbell Forfar, R.A.M.C.

DEATHS IN THE SERVICES

Col. EDWARD MAUDSLEY MORPHEW, C.M.G., D.S.O., died at Cromer on March 8 at the age of 79. A student of University College Hospital, London, he qualified M.R.C.S., L.R.C.P. in 1890. He retired from the R.A.M.C. in 1921, having seen active service in the Tirah campaign of 1897, the South African war, in which he received the Queen's medal with four clasps and the King's medal with two clasps, and in the 1914–18 war, in which he was mentioned in dispatches and received the D.S.O. He was made a C.M.G. in 1918.

AUXILIARY R.A.M.C. FUNDS

The annual general meeting of the members of the Auxiliary Royal Army Medical Corps Funds will be held at 11, Chandos Street, London, W.1, on Monday, April 14, at 5.30 p.m., when the annual report and accounts for 1946 will be presented and officers and auditors elected for 1947.

The Minister of Health trusts that local authorities will now resume the process, interrupted by the war, of establishing small homes for the aged, and he will consider schemes for the acquisition and adaptation of suitable premises, even where priorities or compulsory purchase are involved. A number of such schemes have in fact already been approved. Success has been achieved where the numbers in these homes have been limited to 30 or 35 residents of both sexes, carefully chosen to ensure congenial companionship; where the maximum amount of freedom has been allowed to the old people; where facilities for worship, recreation, shopping, and other services have been readily to hand; and where the site is well away from the public assistance institution. The present demand is for a greater degree of freedom in the residents' daily routine, particularly in the institution, and for easier and more frequent contact with the world outside. There should be visiting hours on each day of the week. Where practicable the residents who wish to do so should be allowed to use their own clothes. Each resident should have a wardrobe or locker with keys, where personal clothes and private possessions may be kept in safety. In the past too much caution has been exercised "in the interests of the aged" when framing the rules for the old people's activities both inside and outside the institution. More freedom should be allowed even if the risks are greater.

EPSOM COLLEGE

The council of Epsom College will shortly proceed to award St. Ann's Scholarships to girls attending Church of England schools. Candidates must be fully nine and under sixteen years of age and must be orphan daughters of medical men who have been in independent practice in England or Wales for not less than five years. The value of each scholarship is dependent upon the means of the applicant and the locality and fees of the school selected.

Pensions are also available from the Fund of the Royal Medical Foundation for impecunious medical men or their widows, and Foundation scholarships, providing education, clothing, and maintenance free of cost, for the sons of necessitous medical practitioners. Application forms are available from the secretary, Epsom College, Surrey.

Medical News

There will be a discussion meeting of the Medical Society of the L.C.C. Service on Thursday, April 3, at 4.15 p.m., at the County Hall, Westminster Bridge, S.E. Dr. McCartney will open a discussion on "The Uses of Photography in Medicine." A number of films made by members of the society will also be shown.

A Pasteur Exhibition will be held at the Science Museum, South Kensington, from April 10 to May 26. Arranged with the assistance of the Cultural Relations Department of the French Foreign Office by the Palais de la Découverte in Paris, where it has recently been on show, it will include a chronological account of the chemical and biological work of Louis Pasteur on fermentation, putrefaction, the spontaneous generation of life, and on the germs of numerous diseases of men, animals, and plants. A section of the exhibition will deal with the Pasteur Institutes established throughout the world for the preparation of serums and vaccines for the combating of disease epidemics. The museum will be open, admission free, from 10 a.m. to 6 p.m. on weekdays, including Saturdays and bank holidays, and from 2.30 p.m. to 6 p.m. on Sundays.

The 19th annual dinner of the Great Ormond Street Dining Club will be held at the Savoy Hotel on Friday, April 11, at 7 p.m., with Dr. Harold Sington in the chair. All members who wish to attend are asked to communicate with the honorary secretary, Hospital for Sick Children, Great Ormond Street, London, W.C.1.

The British Red Cross Society will hold its Easter conference at Exeter University, and has arranged to hold a conference in the North of England on July 4–7, when Durham University is willing to accommodate 150 delegates.

Speaking on "The Study of Epidemic Influenza" at the Royal Institute of Public Health and Hygiene on Feb. 19, Prof. C. H. Stuart-Harris said that the modern study of influenza had begun fifteen years ago with the first laboratory transmission of the disease to the ferret. Technical advances since then had brought the study of the influenza virus within the scope of most well-equipped laboratories. Of chief importance had been the proof of the existence of two independent influenza viruses, A and B, and the utilization of the allantoic and amniotic cavities of the chick embryo for cultivation of the virus and demonstration of its specific haemagglutinin (Hirst phenomenon). Epidemics of influenza were studied in order to demonstrate the type of virus concerned and to differentiate influenza from outbreaks of other types of respiratory tract disease. In the past epidemics of influenza virus infection among semi-isolated communities had exhibited a striking variation in incidence, being sometimes a few sporadic cases and at other times explosive outbreaks. When the incidence of influenza in the general population was studied by means of mortality statistics a correlation was found to exist between widespread epidemics and the demonstration of influenza virus infection in the laboratory. There was evidence of a periodicity of influenza virus infection with cycles at well-defined intervals. Thus some power of prediction of the likelihood of future epidemics now existed, but the intensity of the future outbreak was still a matter of conjecture. Experimental study of influenza by the inoculation of human volunteers with cultures of influenza virus had been developed considerably during the war both in order to yield information concerning immunity and as a test of the efficacy of artificial immunization. The results provided a basis for field trials of immunization in advance of epidemics of influenza, and the success of these trials had suggested that influenza was a preventable disease.

Mr. A. W. McKenny Hughes, D.I.C., who is on the staff of the Natural History Section of the British Museum, has been appointed Hon. Entomologist to University College Hospital.

Sir John Boyd Orr, Director-General of the F.A.O., has announced that the World Food Council will probably be set up at Geneva in August.

The first annual meeting and dinner of the Airborne Medical Society were held on March 15. Brig. A. A. Eagger was elected president and Mr. G. Rigby-Jones honorary secretary. It is proposed to arrange a dinner annually on the evening of the England–Scotland "rugger" match and a lunch after the annual Airborne Forces' memorial service. Gen. Sir Alexander Hood, who was present as a guest, pointed out that many in the room had been pioneers in developing and practising airborne warfare, and Gen. Urquhart suggested that they could render valuable service to the territorial airborne division now being formed. Besides combatant units that would require medical personnel there would be three field ambulances, located probably at London, Liverpool, and Sheffield.

The annual dinner of the Association of Certifying Factory Surgeons was held at the Café Royal, London, on March 20. Mr. George Isaacs, Minister of Labour and National Service, had accepted an invitation to attend, but was unable to do so. Proposing the toast of the visitors, Dr. M. W. Paterson suggested that the 84-hour week worked by most general practitioners might be held to entitle them to the same pensions as those laid down for commissioners and deputy-commissioners under the Industrial Injuries Act. In an eloquent reply Mr. James Griffiths, Minister of National Insurance, referred at some length to this Act, which gave doctors far greater responsibilities than any of the Workmen's Compensation Acts. He described the Act as "a new chapter in the treatment of the men and women who serve the industries of the nation." Dr. R. Nightingale, who presided, proposed the toast of the Factory Department of the Ministry of Labour. In the absence of the Minister, Dr. E. R. A. Merewether replied. Finally, Dr. David McKail responded to Dr. Charles Hill's toast, "The Association of Certifying Factory Surgeons." Dr. Hill mentioned the many links between the Association of Certifying Factory Surgeons and the B.M.A.—links which he hoped would be strengthened in the future. He took the view that the aim of both associations must be the provision of the same health service for the smaller factories as was achieved at its best in the larger factories.

On the advice of the Food Rationing (Special Diets) Advisory Committee, the Minister of Food has decided that persons suffering from active tuberculosis and actinomycosis who are granted a priority supply of milk shall also be granted an additional allowance of one ounce of bacon weekly in order to restore to them the recent cut in the ordinary consumer's bacon ration from three ounces to two ounces a week. These invalids are being invited in the present instance to apply at local Food Offices for the additional allowance. In future the medical certificate of classification will provide the necessary authority for issue.

Each year scholarships in Britain are awarded to students, usually postgraduates, from a number of countries overseas by the British Council. Since the end of the war scholarships have been offered in return to British graduates by Czechoslovakia, Sweden, the Netherlands, and Finland. Ten scholarships of one year's duration have been awarded by the Czechoslovak Ministry of Education, two scholarships for one year each by the Swedish Ministry of Education and the Swedish Institute for Cultural Relations (including one to J. N. Mickerson, M.D., for the study of diseases of the heart and chest), three scholarships for one year and four for one term by the Netherlands Ministry of Education, and one scholarship for one term by the Finnish Ministry of Education.

A unit for the investigation and treatment of rheumatism under the auspices of the British Legion has, since June, 1946, been in operation at Fairfield Hospital, Letchworth, Herts, where there are 50 beds for this purpose. Fairfield Hospital is the country annexe of the Royal Free Hospital. The unit at Letchworth owes its existence to the initiative of the governing body and medical committee of the Royal Free Hospital.

St. George's Hospital is to move from its present site at Hyde Park Corner to the Springfield Estate at Wandsworth. The new building will house 1,000 beds. St. George's was founded in 1733 in Lanesborough House on fields overlooking Hyde Park, and was rebuilt on its present site at the "centre of London" just over 100 years ago.

As a result of representation by local authorities the Secretary of State for Scotland has agreed to the introduction of a standard test for milk, apart from designated and heat-treated milks. The test to be used is the methylene blue (Hiscox) test. Milk failing to pass the test will result in investigation into the conditions of its production and handling.

In our account of the British–Swiss Medical Conference in the *Journal* of Sept. 28, 1946, we stated that Mr. John Hunter was unfortunately taken ill during the Proceedings. We are glad to learn that he is now back at work.

Dr. Doris Odlum has been elected a Corresponding Member of the Swiss Psychiatric Association.

No. 10

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 8.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947 (a)	1947 (b)	1947 (c)	1947 (d)	1947 (e)	1946 (Corresponding Week) (a)	1946 (b)	1946 (c)	1946 (d)	1946 (e)
Cerebrospinal fever	86	7	33	5	8	45	3	35	2	2
Deaths		2	3				—	2		
Diphtheria	182	20	34	18	12	477	31	116	40	17
Deaths	1	1	—		—	10	1	1	—	—
Dysentery	69	11	38	—	—	295	36	64	—	1
Deaths					—				—	—
Encephalitis lethargica, acute	—	—	1	—	—	2	—	1	1	—
Deaths		—					—			
Erysipelas			46	13	4			30	8	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				29					43	
Deaths	89	9	21		2	55	7	8	13	—
Measles*	12,137	574	246	21	168	1,672	557	545	60	—
Deaths	37	6	1		2	2	—	1	1	—
Ophthalmia neonatorum	81	1	15	1	1	57	2	18	—	—
Deaths										
Paratyphoid fever	4	—	1 (B)	—	—	16	—	1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	958	81	18	28	8	849	65	27	17	8
Deaths (from influenza)†	92	17	4		2	112	18	7	3	3
Pneumonia, primary			303	55				278	23	
Deaths		102			17		46		7	14
Polio-encephalitis, acute	—	—				4	1			
Deaths		1					—			
Poliomyelitis, acute	10	1	2	2	—	7	—	—	3	—
Deaths		—					—			
Puerperal fever		1	10		—		—	21		—
Deaths										
Puerperal pyrexia‡	128	5	11	—	2	127	6	11	2	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,217	79	199	21	37	1,137	75	179	11	20
Deaths	1	—	1		—	—	—	—	—	—
Smallpox	7	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Typhoid fever	4	—	1	1	—	5	—	2	4	—
Deaths	—	—	—		—	—	—	1	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Whooping-cough*	2,461	262	369	109	29	1,843	138	117	34	8
Deaths	15	1	9		2	6	2	—	1	—
Deaths (0–1 year)	636	79	78		17	420	57	66	42	13
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	7,755	1258	931		195	5,770	861	725	277	149
Annual death rate (per 1,000 persons living)			19·4					16·0	17·7	
Live births	9,650	1452	1231		274	7,534	1138	972	356	258
Annual rate per 1,000 persons living			24·8					19·6	22·8	
Stillbirths	290	33	49			247	20	29		
Rate per 1,000 total births (including stillborn)			38					29		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Return of births and deaths for Eire for week ended March 8 is not yet available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* a decrease in notifications was recorded for measles 1,200, dysentery 23, and acute pneumonia 23, while an increase was reported for whooping-cough 171 and scarlet fever 50.

The rise in the incidence of whooping-cough was mainly confined to London and the south-east and south midland counties; 168 more notifications were recorded in these areas than in the preceding week, but no large local variations occurred. Only small fluctuations were reported in the local trends of scarlet fever.

A small decrease was recorded in most areas for cases of acute pneumonia, the only exception of note being an increase of 27 in London. The only appreciable change in the local returns of diphtheria was a decrease of 14 in Lancashire. The largest falls in the notification of measles were Lancashire 440, Middlesex 181, Staffordshire 179, Nottinghamshire 133, Warwickshire 121, and Devonshire 107; counties with an increased incidence included Yorkshire West Riding 94, Derbyshire 62, Somersetshire 56, and Glamorganshire 45.

An outbreak of dysentery was reported in Dorset, Poole M.B., affecting 12 persons. The only other important centres of dysentery were Middlesex 12 and London 11.

In *Scotland* a decrease was recorded in the notifications of scarlet fever 29 and of diphtheria 12. There was an increase in cases of acute primary pneumonia 26 and dysentery 22. The notifications of diphtheria have declined continuously for the past month and the 34 cases during the week are the smallest total yet recorded; half of these cases were notified in Glasgow. The increase in the incidence of dysentery was due to its reappearance, after one week's interval, in Banff county, where 20 cases were notified this week.

In *Eire* a rise occurred in the incidence of primary pneumonia 34 and of whooping-cough 23. Notifications of diarrhoea and enteritis were 12 fewer than in the preceding week. The rise in the incidence of whooping-cough was due to the experience of Dublin C.B., where cases increased from 62 to 87.

In *Northern Ireland* a further fall of 29 was recorded in the outbreak of measles in Belfast C.B. Diphtheria notifications, which had been at a constant level of 6 cases per week, rose to 12 cases.

Week Ending March 15

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,336, whooping-cough 2,407, diphtheria 184, measles 11,269, acute pneumonia 1,076, cerebrospinal fever 107, dysentery 73, smallpox 2, paratyphoid 5, typhoid 6. Deaths from influenza in the 126 great towns numbered 80.

Universities and Colleges

UNIVERSITY OF LONDON

CHARING CROSS HOSPITAL MEDICAL SCHOOL

The pre-clinical departments of Charing Cross Hospital Medical School are to be reopened. The school ceased to teach anatomy and physiology in 1911 and entered into agreements with King's College, London, whereby students of the school attended the college for this instruction, an arrangement which has continued to date. As the accommodation in the medical schools throughout the country is inadequate for the number of students wishing to study medicine, the revival of the departments in the school, by absorbing an additional 45 students each year, will help to meet the deficiency. It is hoped that the repair of the damage to the school buildings, suffered as a result of enemy action during the war, will be completed in time for the departments of anatomy and physiology to be reopened at the beginning of the next academic year in October. Opportunity will be taken at the same time to admit women students to the clinical as well as to the pre-clinical courses.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved at the examination indicated:

D.T.M. AND H.—H. E. Al-Abed, H. Annamunthodo, R. H. Bell, M. V. Chari, F. G. Domaingue, A. E. S. Eissa, H. S. Fuller, V. V. Gharpure, D. J. Gilbert, J. Harper, M. S. Holman, L. Jacobson, V. N. Jai, S. K. Kaan, A. Kertesz, R. R. Lam, J. I. Lesh (Part 2 only), K. H. Lim, P. L. Lim, R. D. Maclean, R. C. Macleod, J. P. P. Mackey, Y. H. Ng, Q. Pasha, S. H. Patel, I. B. Patwari, A. R. Qattan, R. V. Rele, S. C. Sanghani, A. O. Sasegbon, K. S. Seal, I. H. Syed, W. J. Utin, J. M. Vaizey, D. W. Wells, J. P. F. Whelan, N. G. Yu.

UNIVERSITY OF LEEDS

At a meeting of the Council of the University held on March 19 Hugh Gregory Garland, M.D., F.R.C.P., was appointed Honorary Demonstrator in Neuropathology.

UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. in the Welsh National School of Medicine have been approved at the examinations indicated:

Hygiene: Marjorie J. A. Davies, Dilys W. John, Eluned K. Jones, H. T. Jones, Rosina E. Jones, Constance A. M. Llewellyn, Myfanwy M. G. Prethero, Prudence K. Roberts, Heather Stockdale, T. M. Warren. *Surgery:* D. R. Bowen, Elizabeth B. Butler, Joan P. Ciantar, A. C. Coulthard, G. C. Davies, Clare G. M. Dillon, *G. S. Foster, H. Harrop-Griffiths, C. Havard, Margaret E. B. Jones, Margaret O. Jones, W. R. King, J. B. R. Lewis, *L. T. Lewis, R. M. Marshall, *Margaret I. Morgan, Vivien J. Parker, L. T. Rees, G. G. Richmond, S. Solomon, J. G. Tomkins. *Obstetrics and Gynaecology:* Elizabeth B. Butler, A. J. Dark, H. B. Davies, Marjorie J. A. Davies, H. Harrop-Griffiths, C. H. L. Howells, T. R. Hunt, H. T. Jones, J. G. Leopold, E. G. Rees, Prudence K. Roberts, Heather Stockdale, T. M. Warren.

* With distinction.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following medical degrees were conferred on March 12:

M.D.—L. R. S. MacFarlane, J. V. Morris.
M.A.O.—D. V. Latham.
M.B., B.Ch., B.A.O.—J. R. A. Burns, M. H. Daniels, Kathleen M. Ellis, O. S. J. Redman, H. G. Scott, J. Steinberg, Margaret P. Steiner (formerly Rowan), C. D. Turpin.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A series of lectures in otolaryngology will be delivered at the College (Lincoln's Inn Fields, W.C.) on April 28, 29, and 30, and May 2, 5, 6, 7, 9, 12, 13, 14, and 15, at 6.15 p.m. each day. A series of lectures in orthopaedics will be delivered on May 16, May 19–23, and May 27 and 28, at 5 p.m.; and on May 29 and 30, at 5 p.m. and 6.15 p.m. each day. The fee for each course is £5 5s.; Fellows and Members of the College and Licentiates in Dental Surgery will be admitted for £3 3s. Applications and cheques should be sent to the assistant secretary of the College. Details of the lectures will be published in the diary column of the *Supplement* week by week.

At an ordinary meeting of the Council of the College held on March 13, with Sir Alfred Webb-Johnson, Bt., President, in the chair, the following hospitals were recognized under the conditions of paragraph 23 (*b*) of the regulations for the Fellowship: Highgate Hospital (resident surgical officer); Archway Hospital (resident surgical officer); St. Stephen's Hospital (junior resident surgical officer and house-surgeon for one year).

Diplomas of Fellowship were granted to the following candidates:

L. E. D. Knights, F. S. Mitchell-Heggs, P. I. Hywel-Davies, M. S. Ambrose, I. F. Rose, P. G. Epps, A. J. Walton, L. L. Whytehead, A. C. Bingold, P. T. Savage, J. D. Cronin, R. L. G. Dawson, G. F. Smart, M. H. M. Ryan, W. Black, A. M. Abrahams, I. Demerdash, E. W. Grahame, R. J. Last, L. P. Le Quesne, A. L. Lomas, J. J. MacHale, A. T. Mansuri, A. J. Marsden, N. E. Stidolph, L. P. Thomas, J. V. Todd, M. F. A. Woodruff.

Diplomas of Membership were granted to R. M. Forrester and A. M. McCall.

Diplomas in Physical Medicine and in Ophthalmic Medicine and Surgery were granted, jointly with the Royal College of Physicians of London, to the following candidates:

DIPLOMA IN PHYSICAL MEDICINE.—M. H. L. Desmarais, A. J. Enzer, A. J. Martin, J. R. Preston, A. Stoddard.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—J. R. Acfield, M. H. Adams, R. P. Baird, G. Bennett, D. Black, C. F. Bowes, L. Boxer, A. V. Clemmey, J. E. Coates, D. B. H. Dawson, A. L. Dick, G. de L. Fenwick, M. Ferguson, R. G. S. Ferguson, A. B. W. Ferreira, C. F. Garfit, O. M. Haarburger, W. H. C. M. Hamilton, L. B. Hardman, Joan Haythorne, A. C. Higgitt, J. C. Hill, B. L. Hoffman, J. M. L. Howat, H. L. Hughes, H. H. Johnson, Anna M. Joyce, J. A. Langille, M. N. Laybourne, V. T. Lees, G. D. Lehmann, G. Leiman, R. Leishman, J. A. N. Lock, J. D. Lodge, Helen C. Longmore, J. G. Louw, R. J. H. McMahon, N. L. McNeil, Kathleen F. Matthews, R. A. Megally, A. D. Milne, J. E. Moffett, T. G. S. Murray, W. C. G. Murray, C. T. Newnham, Marjorie E. Pollard, C. E. Powell, R. E. Rees, K. W. B. Rostron, H. B. Smith, V. Tabone, M. A. Weaver, J. E. Wolff, M. H. Wright.

Applications are invited by the Royal College of Physicians of London and the Royal College of Surgeons of England for a Mackenzie Mackinnon Fellowship for research in medicine or surgery. The Fellowship will be in the form of grants to assist research and may be whole- or part-time. The honorarium will be at the discretion of the joint committee, and will be from £500 per annum according to experience and the amount of time available for research. A grant for expenses may be paid to the institution where the research is carried out. Candidates must hold a medical qualification registrable in this country or a university degree. Applications must be submitted through a medical school. Further particulars and application forms may be obtained from the secretary, Royal College of Surgeons of England (Lincoln's Inn Fields, London, W.C.2). The closing date for applications is April 18.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Antiseptics

Q.—*I have to deal with patients suffering from long-standing chronic sepsis, usually of bone, and I am interested in improved methods of skin sterilization and improved antiseptic wound dressings. Can you give me information on the following points? (1) Is either C.T.A.B. or phenyl mercuric nitrate likely to cause serious allergic reaction? (2) In the use of phenyl mercuric nitrate as a pre-operative skin preparation or post-operatively as soaks or wet packs for surface and cavity infections, and with or without azochloramid, is there likely to be any interaction of these substances destroying one or both, or any risk of toxic absorption by the patient? (3) Is C.T.A.B. incompatible with either phenyl mercuric nitrate or azochloramid? (4) Can phenyl mercuric nitrate be given by mouth, intramuscularly, or intravenously for any condition? (5) I have heard of a German preparation called "marfanil" for use in place of penicillin in treating staphylococcal and streptococcal infections. Can you tell me the chemical composition of this compound?*

A.—It is difficult to answer briefly this involved question. In the first place, the pre-operative sterilization of skin and the treatment of "long-standing chronic sepsis, usually of bone," are entirely different problems and call for totally different agents and methods. The mere application of dressings containing any of the antiseptics mentioned is unlikely to have any effect at all for the second purpose; if bone is involved it calls for radical surgery, perhaps combined with penicillin treatment. The antiseptic treatment required for chronic sepsis in any form depends on the nature of the infection; the pus should first be examined bacteriologically. In general, the most effective agents, if the bacteria concerned are susceptible to them, are the antibiotics (penicillin, tyrothricin, etc.), mixtures or compounds of sulphonamides, and acridine compounds (for example, 1 part of proflavine to 99 parts of sulphathiazole, used as a powder). The second general point is that it is unwise to use two different antiseptics together unless there are definite reasons for doing so (as, in fact, there are in the above example). It is far better to rely on one sound one, the action of which is well understood, and to use it properly, than to confuse matters by introducing two.

The answers to the specific questions are: (1) No. (2 and 3) It is unlikely that toxic effects will result from absorption except in the case of phenyl mercuric nitrate used in considerable quantity, especially in cavities. All mercury compounds are toxic and ill suited to application to any tissue except skin. There are theoretical reasons for supposing that C.T.A.B. would react with phenyl mercuric nitrate and actual test shows that a precipitate is formed when they are mixed. Azochloramid should not react with either. On the other hand, it is impossible, for several reasons, to predict on theoretical grounds whether the combined action of any two of these substances would equal, exceed, or fall below the sum of their separate actions; this could be decided only by an *ad hoc* test on bacteria. (4) No. (5) Marfanil (this is the original German name: also described as "homosulphanilamide," "sulphabenzamine," etc.) is *p*-sulphonamidobenzylamine. The compound was extensively used in the German Army for local application to wounds. There is experimental evidence of its efficacy in preventing gas gangrene, and it has the advantage over other sulphonamides of not being inactivated by pus. It is suitable only for local application, and is therefore not a substitute for penicillin in the sense of this question.

Ethisterone for Habitual Abortion

Q.—*What is ethisterone, and what is the rationale of its use in the treatment of habitual abortion?*

A.—Ethisterone is a steroid compound whose chemical structure is similar in type to that of progesterone and testosterone

Other names for it are anhydro-hydroxy-progesterone, ethinyl testosterone, and pregneninolone. Its biological actions, according to animal experiment, resemble in some respects those of progesterone and in others those of oestrogens and of androgens. Among other things it has been shown that in rabbits ethisterone can produce progestational changes in the oestrogen-primed endometrium and that it prevents abortion which ordinarily follows ovariectomy during pregnancy in these animals. It is on such evidence that it is used in place of progesterone, or as a supplement to it, in cases of habitual abortion. Its advantage over progesterone is that it is effective by the oral route. On the other hand, its biological activity is comparatively weak, and progesterone given by injection is six to ten times more effective. Large doses of ethisterone are therefore required, and although it is widely used in clinical work it is doubtful whether its practical value has yet been established.

Instruction about Menstruation

Q.—*Could you recommend a book dealing with the physiology of menstruation and suitable for a girl of 12 years? I would prefer one containing diagrams.*

A.—I do not know of any book on menstruation suitable for reading by a girl of 12, and if any are available the wisdom of giving them to a girl of that age is open to question. She should not be encouraged to concern herself with the details of anatomy and physiology but should be told only the general principles governing menstruation and its management. This information is best imparted verbally and informally, as the occasion arises, by informed parents, or sometimes by the family doctor or school-teacher. See also a reply to a question published in the *Journal* of Oct. 6, 1945 (p. 483).

Carcinoma at Site of Insulin Injection

Q.—*Is anything known of the development of carcinoma at the site of injection of protamine zinc insulin?*

A.—So far as is known a carcinoma has not developed at the site of injection of protamine zinc insulin, though atrophy of the fat may occur if repeated injections are made in the same place. It is advisable to change the site of injection every day.

Causes of Anosmia

Q.—*A middle-aged woman has lost her sense of smell, but has had a musty sweet odour in the nose for six months following an attack of influenza. She has since been free from colds. There are no other signs or symptoms. What line of investigation or treatment should be followed?*

A.—The patient has either a sinusitis which has not been previously located and may be in one or other antrum, or an atrophy of the olfactory nerve following influenza. In any case the sinuses should be *x*-rayed.

Erythromelalgia at the Menopause

Q.—*Until the age of 45, when the menopause started, a woman had severe chilblains every winter; since then she has had none. She is now 49, and for the past three years has had increasingly painful "burning" of the feet as soon as she gets warm in bed, with every sign of extreme local vasodilatation. Her blood pressure is 190/100 mm. Hg and her last period was two years ago.*

A.—Although the menopause seems to have precipitated the vascular change in the feet this is not necessarily so, and some features of the case suggest that the two conditions are not directly connected. Thus a change in the circulation of the feet evidently began at least two years before menstruation ceased, and whereas the climacteric disturbance of the vasomotor system, as manifest by hot flushes, seems to be clearing up, the vascular upset in the feet is getting worse. It is therefore unlikely that oestrogenic or other hormone therapy will be of any value. The description is fairly typical of one type of erythromelalgia in which the symptoms are brought on by heat rather than posture. If the patient has arterial disease associated with the hypertension this might be an important aetiological factor, and investigations from this standpoint should be carried out. Unless an underlying cause such as this can be found the treatment of erythromelalgia is not very satisfactory; but, apart from simple treatment such as elevation of the feet and reducing the number of bedclothes, calcium in large doses and quinine sometimes appear to be helpful.

Cold Urticaria

Q.—*A healthy girl of 19 has for the last five years been subject to attacks of urticaria on exposure to cold. The rash is typical and spreads rapidly over the body; it fades within half an hour if she gets warm. Treatment by calcium injections has had no effect.*

A.—Cold urticaria indicates a peculiar individual sensitiveness to mild exposure to cold or to a certain range of temperatures. In these individuals the slight injury provokes an abnormal quantity of a histamine-like substance in the skin, which determines the local and general reaction by urticaria. The susceptibility may date from puberty or sometimes follows an illness, such as influenza. It commonly lasts for a number of years and eventually disappears. The usual lines of treatment have not in the past been of much avail, but it is likely that the recently introduced anti-histamine products (for example, "benadryl") may control the attacks.

Mongolism and Thyroid Deficiency

Q.—*What is the earliest age at which treatment with thyroid should be started for mongolian idiocy? What is the dosage, and what, if any, are the precautions that should be taken? Is it of much use?*

A.—Mongolian idiocy is not caused by a thyroid deficiency, therefore treatment with thyroid will not be of benefit. It is remotely possible that a mongolian idiot might also be a cretin, although no such combination has ever been reported. In these circumstances the cretinism should be treated with thyroid, starting with 1/4 gr. (16 mg.) daily in early infancy and later increasing the dose to 1/2 gr. (32 mg.).

Heat Reflection

Q.—*Is there a suitable material for covering the screen behind an invalid's chair so as to reflect the heat from the fire? Can walls or ceilings or even curtains be made to reflect heat?*

A.—A bright polished surface reflects most and absorbs least. White and light-coloured materials reflect most, and dark and black materials absorb most. A dark material lining an invalid chair will absorb more from a fire and become warmer, while a polished metal screen encircling the chair will reflect the heat of the fire on to it. On the other hand, a dark screen will become warm and warm the surrounding air.

INCOME TAX

All inquiries will receive an authoritative reply but only a selection can be published.

Residence Abroad

"COLONIAL" is shortly taking up an appointment abroad. He has an income arising in this country—£360 gross taxed at source plus £22 10s. which is not taxed and which we assume to be derived from 3½% War Stock. Will he be able to reclaim the tax paid in the United Kingdom?

*** Not entirely. Assuming that "Colonial" is not retaining a residence in this country, he will be entitled, as a British subject residing abroad, to claim a *proportion* of the reliefs claimable by residents here. For instance, his British income (excluding the war loan interest on which he will be able to claim exemption) will be about one-half the colonial income, and he will therefore claim one-half of the reliefs due in respect of personal allowance, the reduced rate applicable to the first £125 of taxable income, etc.

Cost of Telephone

R. holds an appointment—his duties require him to be on call though the majority of the calls are private ones. What can he claim as a deduction from his salary?

*** The current costs of his telephone—i.e., total cost less any "instalment" expenses—in the proportion of the "employment" calls to the total. No doubt the amount will have to be estimated.

Letters and Notes

Twelve Toes

Dr. ARDESHIR K. TURNER (Bombay) writes: I am tempted to bring this case of "nature's freak" before the medical practitioners of England and other countries. The photo is that of a Hindu

labourer (household worker) aged 25. He has two big toes on both his feet and can walk without the least difficulty or pain. His hands and fingers are all right. He is a bachelor. None of his relations shows this abnormality.

Prognosis of Hypertension

Dr. W. WEISS (London, N.W.6) writes: I read Dr. V. C. Medvei's letter (Feb. 15, p. 269) on the "Prognosis of Hypertension" and learned that apparently great conflict has arisen with regard to the fact that the blood pressure in old people is above the arithmetical average. . . . A blood pressure to be regarded "high" in middle age may be "low" in old age. It is not the reading of the blood pressure as such which has to be taken into account when a prognosis is to be made; the problem is, how does the motor, the heart, react to the blood pressure level? The heart certainly will often have to work harder when a blood pressure rises, and it makes no difference to the organ whether the blood pressure rises in younger days (hypertension) or whether the rise occurs (physiological) in older days—the heart will be urged to work harder. And so at best it depends entirely on the vitality or muscle power of the heart muscle whether the old patient will have to be recognized as a "hypertonic" or not.

Hospital Bureaucracy

Mr. G. H. CAIGER, F.R.C.S. (S. Africa), writes: The African servant of a friend of mine fell off a bicycle returning from a garden on the outskirts of the town. When he had not returned before dark the mistress learned from the police that the boy had been admitted to the local Government hospital with a fractured forearm (lower third of the right radius). This occurred on a Thursday. She rang up and also visited the hospital to find out and see how the boy was. Someone in the "phone inquiries" seemed to think it very funny her asking about a patient and could be heard laughing and repeatedly saying "poor Willie X." As if once was not enough this was repeated again the next day on making inquiries, but the mistress's humour was by this time flagging somewhat. No radiographical examination had been made before the week-end, and on the Monday the mistress was informed that the "doctor" (H.S.) had been away for the week-end. Being a trained nurse she repaired to the hospital to see if things could be expedited, and soon succeeded in demolishing the myth that the doctor had been away, and got an admission that he had been there all the week-end. On the following day, Tuesday, five days after admission, she was informed on inquiry that the *x* ray showed the bone in good position and it was not necessary to set the fracture. Till now only the temporary splint had been left on, the arm remaining painful. They could not say when he would be fit to discharge. Unhappy about the whole position and planning to leave on holiday on the Thursday, she suddenly in her extremity remembered a friend of her husband's in charge of a missionary hospital for Africans, and she repaired to him for advice. He is an American and so put his hand in his pocket from long usage, produced his car keys, and said, "Take my car, drive down to the hospital, get the boy discharged, bring the *x* rays and the boy to me." The boy was admitted, the fracture set under an anaesthetic and the arm put in plaster, and the boy was sent out that afternoon. The final result has been 100%, and the boy has full use of the arm. It is easy to tell this little tale, which, although it concerns an African, may as easily apply to others before long. In my opinion it illustrates the difference between the bureaucratic-ridden institution and the hospital as those who know what it should be and can be would like to see it. Soon those who know the best traditions will not be there, or submerged beneath a sea of bureaucracy, and they fear, their patients with them. This, as I see it, is the centra fear of many that the belief in "drive, organization, and will power" does not build real systems of healing and endangers the finer spiritual qualities without which the best cannot be achieved or maintained.

Shadows under the Eyes

Dr. HUGH A. L. O. LATTA (Liverpool) writes: Sharing Dr. Bernard Sweetman's interest (Feb. 15, p. 283), the one constant factor in those I have observed seems to have been emotional inhibition. It is most noticeable in young people with finer, softer skins and more resilient subcutaneous tissues, and three groups as examples come to mind: (1) Children prevented from free expression in play; (2) young people from 15 to 25 denied free social intercourse by too strict an upbringing; (3) students not taking sufficient physical and mental relaxation while swotting for examinations. Assuming the relative overworking of inhibitory impulses from the prefrontal gyrus makes increased blood drainage via the tributaries of the anterior cerebral veins, one can postulate that some of these will be shunted via the anastomotic veins adjoining the anterior cerebral to the ophthalmic veins. The relative subcutaneous venous engorgement at the inner angle of the eye and on both eyelids is easily visible, but attention is focused on the area just beneath the eyes where the contrast with the skin of the cheek is so marked. The dramatized "hollow eyes" of grief, anguish, and villainy seem to be the sign in its most pronounced form.

Dr. JOHN CAHILL (Middlesbrough) writes: Referring to Dr. Bernard Sweetman's inquiry (Feb. 15, p. 283) as to the causes, other than gross organic disease, of shadows under the eyes, it appears that such shadows in the young are most frequently associated with fatigue in a nervous child.

Cracked Nipple

Dr. D. REID TWEEDIE (Sungei Siput, Perak, Malaya) writes: Having failed with all the usual nostrums to disperse a painful crack in the nipple of a nursing mother I tried the effect of applying after feeds a drop of a strong solution of penicillin (20,000 units to 1 ml.), and was astonished and pleased to find that the crack granulated up and disappeared in about 72 hours.

Penicillin for Colds

Dr. J. A. ROOTH (Brighton) writes: In reply to your correspondent (March 1) who asks if penicillin has been tried for colds, I have tried it on myself and family with great success. The technique is simple: I use the ointment in a tube with a small nozzle and squeeze a small amount into each nostril, massage the nose slightly and then sniff up the ointment. The effect was most encouraging: the sneezing and running of the eyes and nose stopped immediately and the extension of the coryza to the bronchial tubes was arrested. This treatment should be investigated.

Disclaimer

Dr. R. CUDDEFORD (Cross-in-Hand, Sussex) writes: I am the doctor mentioned in an article on a three-pound baby in the *Sussex County Herald* dated Feb. 14, 1947. I was not aware that this was printed in a public newspaper until it was pointed out to me. I am in no way responsible for the publicity, which is apparently the effort of the grateful parents.

Correction

In the reply to a question about "dilantin" (Feb. 15, p. 2[illegible]) we should have made it clear that "dilantin" is the proprietary name in America for sodium diphenylhydantoinate, introduced nine years ago by Parke, Davis and Co., following the work by Merritt and Putnam to which reference was made (*Science*, 1937, **85**, 52[illegible]). In this country "dilantin" became "epanutin," and the drug is sold by other firms as phenytoin soluble and as sodium diphenylhydantoinate.

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